Exhibit F-Test Report

1 -TRANSMITTER PERFORMANCE TESTS

This section documents the test procedures used, and records the results of tests to demonstrate compliance with the applicable requirements of parts 2 and 87 of the FCC Rules and Regulations.

1.1 RF OUTPUT POWER

1.1.1 REQUIREMENTS

FCC Sec. §2.985
Measurements required: RF power output.
(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in Sec. 2.983(d)(5). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

FCC §87.131

Power must be determined by direct measurement. The following lists authorized emissions and maximum power.

Class of Station	Frequency Band	Emissions	Power
Radionavigation	Various[7]	Various[7]	Various[7]

7-Frequency, emission, and maximum power will be determined by appropriate standards during the type acceptance process.

1.1.2 TEST PROCEDURE

The DME-4000 was adjusted in accordance with the alignment procedure listed in the PTR(Exhibit-N). The primary power supply was set to 27.5 VDC. The peak output power was measured at carrier frequencies of 1025, 1068 and 1150 MHz with the DME-4000 configured per the test setup shown in Figure-1. The RF load for these measurements was a 20 dB directional coupler in series with the IFR ATC1400A Test set. The attenuated port of the directional coupler was connected to a 20 pad dB in series with a 10dB pad. The 10 dB pad was then connected to the Peak Power Meter (Giga-tronics 8502A). The peak output power measurements were made using the Giga-tronics 8502A power meter. Figure 1 shows the test setup.

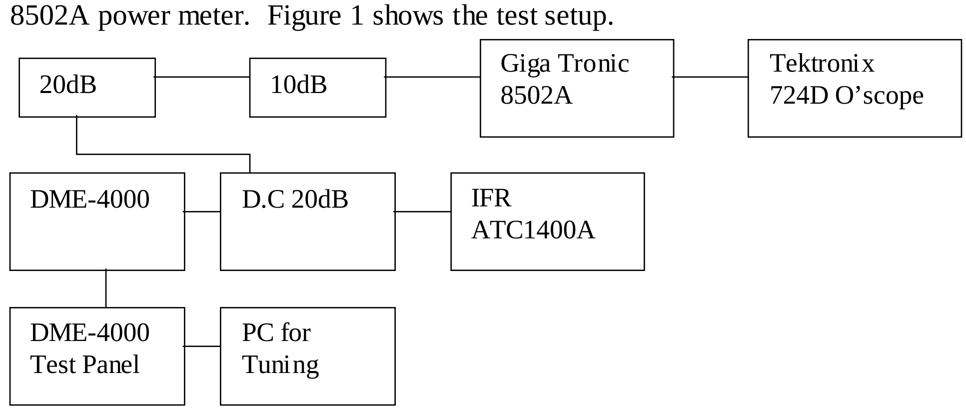

Figure 1

1.1.2.1 Test Equipment List

Qty	Control number	Description	Cal due date
1	469-0069-439	Gigatronics Peak Power Meter	2-28-2003
1	469-0069-613	Gigatronics 16936 Power Detector	2-28-2003
1	469-0069-614	Gigatronics 16936 Power Detector	2-28-2003
1	469-0063-758	Narda 3042-20, 20 dB Coaxial Directional Coupler	10-31-2003
1	460-0071-281	Weinschel 35-20, 20dB Attenuator	10-31-2005
1	469-0071-001	IFR ATC-1400, DME Test Set	5-31-2002
1	469-0069-632	Weinschel model 1, 10dB Attenuator	08-31-2002
1	469-0069-446	Tektronix TDS724D Digital Oscilloscope	11-30-2002
1	469-0069-098	HP E3631A, Power Supply	3-31-2002
1	S/N US03500533	HP VL600 Computer	N/A
1	N/A	Collins DME-4000 Top Level Interconnect	N/A
1	Not Required	DME-4000 Test Set Panel	N/A

1.1.3 TEST RESULTS

The data sheet below lists the output power measurement.

Type Number:	**DME-4000**		Serial Number:	**GX8Y**
Date Tested:	**12/13/01**		Tested by: Test Location:	**Jim Ledebur** **Melbourne Engineering**

Frequency (MHz)	Peak Output Power (Watts)
1025	555
1088	503
1150	535

Test results indicates the DME 4000 meets and exceeds the requirements.
Compliance with the principal requirements is demonstrated.

1.2 Modulation Characteristic

The DME-4000 emission type as defined in §2.201 is M1D. The necessary bandwidth as defined in §2.202 is calculated from formula

$$Bn=2K/t$$

Bn= Necessary bandwidth

K= is a numerical factor which is defined for M1D emission ,per §2.202 (g)-Table of necessary bandwidth (Radio- relays system……), to be 1.6

t= pulse duration (defined per RTCA/DO-189 to be 3.5 microseconds +/- 0.5 microseconds at 50% points). For the purpose of calculation we will consider the worse case of the pulse width which is 3.0 microseconds.

Assuming minimum allowable pulse duration of 3.0 microseconds, then

$$Bn=2(1.6)/3 \text{ X } 10^{-6} = 1.0667 \text{ MHz}$$

1.1 MHz

Thus, the complete emission designation according to §2.201 is 1M10M1D

1.2.1 Requirements

FCC Sec. §2.987
Modulation Characteristics (d).
A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

The DME-4000 transmitter output consists of pulse pairs whose attributes are defined by RTCA/DO189. The principal requirements are:

Pulse spacing- 12 +/- 0.25 microseconds between the 50% points, X channel

Pulse spacing- 36 +/- 0.25 microsecond between the 50% points, Y channel

Pulse rise time (10 to 90%)-NMT 3.0 microseconds

Pulse fall time(10 to 90%)-NMT 3.5 microseconds

Pulse duration- 3.5 +/- 0.5 microseconds (50% points)

Pulse top-Instantaneous value, between 95% points shall not drop below 95% of the maximum

1.2.2 Test Procedure

The DME-4000 and the test equipment were connected as shown in Figure 2. The peak power meter, Gigatronics 8502 A, was used to detect the transmitter pulse and its' characteristics. The following measurements were made with the DME-4000 in search mode on various channels for both X and Y mode transmissions. See Figure 3 thru Figure 8 for plots of 1X and 1Y transmitter pulse pairs and their characteristics. The waveform shown in Figure 3 thru Figure 8 were captured using an Oscilloscope, Tektronics 724D.

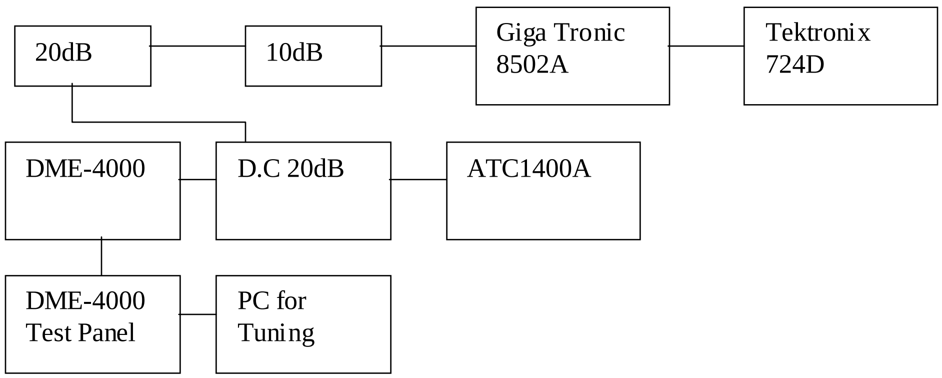

Figure 2

1.2.2.1 Test Equipment List

Qty	Control number	Description	Cal due date
1	469-0069-439	Gigatronix Peak Power Meter	2-28-2003
1	469-0069-613	Gigatronix 16936 Power Detector	2-28-2003
1	469-0069-614	Gigatronix 16936 Power Detector	2-28-2003
1	469-0063-758	Narda 3042-20, 20 dB Coaxial Directional Coupler	10-31-2003
1	460-0071-281	Weinschel 35-20, 20dB Attenuator	10-31-2005
1	469-0071-001	IFR ATC-1400, DME Test Set	5-31-2002
1	469-0069-632	Weinschel model 1, 10dB Attenuator	08-31-2002
1	469-0069-446	Tektronix TDS724D Digital Oscilloscope	11-30-2002
1	469-0069-098	HP E3631A, Power Supply	3-31-2002
1	S/N US03500533	HP VL600 Computer	N/A
1	N/A	Collins DME-4000 Top Level Interconnect	N/A
1	Not Required	DME-4000 Test Set Panel	N/A

1.2.3 Test Results

Type Number:	**DME-4000**		Serial Number:	**GX8Y**
Date Tested:	**12/21/01**		Tested by: Test Location:	**Jim Ledebur** **Melbourne Engineering**

The DME-4000 modulator is controlled by a Digital Signal Processor (DSP), Intel 5416, The operation of the DME-4000 is discussed in the DME-4000 technical description included in Exhibit-L.

Figures 3 - 8 show the detected envelop of a DME-4000 transmitter pulse as seen using the video detector of Gigatronics8502A power meter and the Tektronics model 724D oscilloscope.

Figure 3 thru Figure 5 show the detected pulse pairs for an X channel.

Figure 6 thru Figure 8 show the detected pulse pairs for an Y channel.

Test results indicates the DME 4000 meets and exceeds the requirements.
Compliance with the principal requirements is demonstrated.

Channel 1X Pulse Characteristics

Pulse Spacing	TSO Limits
11.9933µS	12+/-0.25µS

Characteristics	First Pulse	Second Pulse	TSO Limits
Rise Time	1.372µS	1.4189µS	<3.0µS
Fall Time:	1.5311µS	1.5403µS	<3.5µS
Pulse Width	3.28µS	3.29µS	3.5+/-0.5µS
Pulse Top	YES	YES	Round/Smooth

Channel 1Y Pulse Characteristics

Pulse Spacing	TSO Limits
36.00µS	36+/-0.25µS

Characteristics	First Pulse	Second Pulse	TSO Limits
Rise Time	1.410µS	1.394µS	<3.0µS
Fall Time:	1.542µS	1.543µS	<3.5µS
Pulse Width	3.27µS	3.286µS	3.5+/-0.5µS
Pulse Top	YES	YES	Round/Smooth

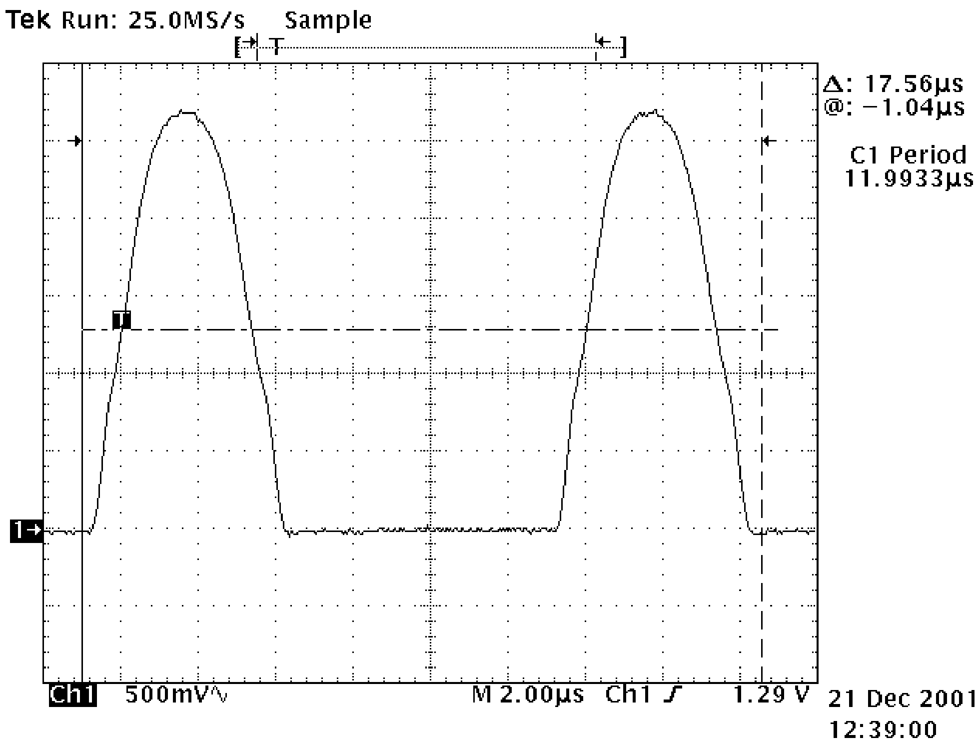

Figure 3 (Channel 1X pulse spacing between P1 and P2)

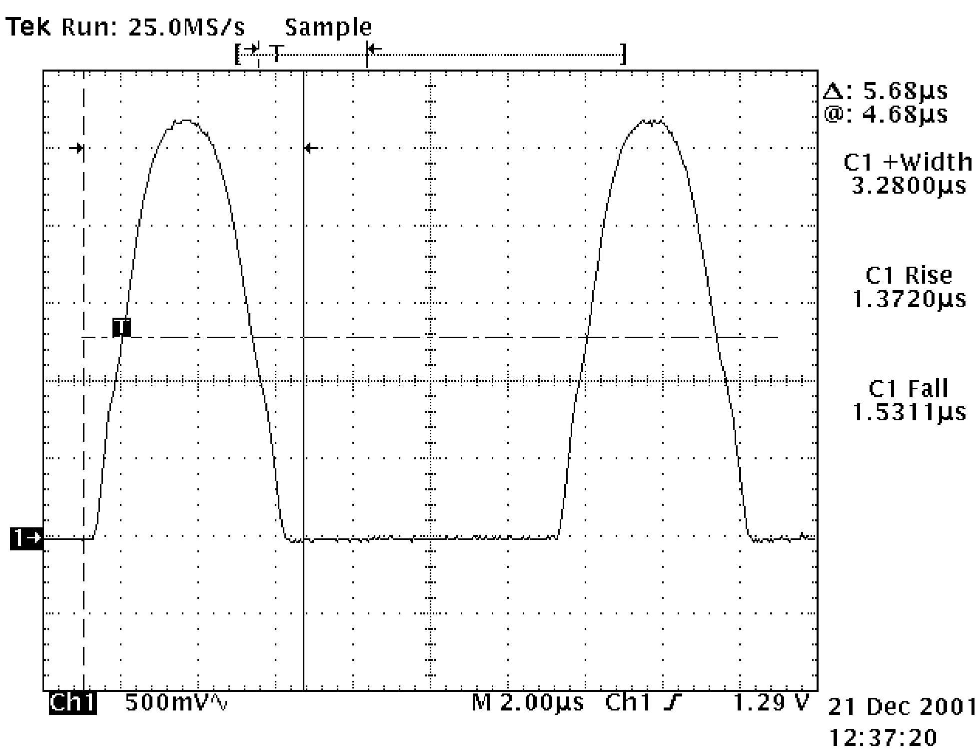

Figure 4 (Channel 1X- P1 rise time, fall time and pulse width)

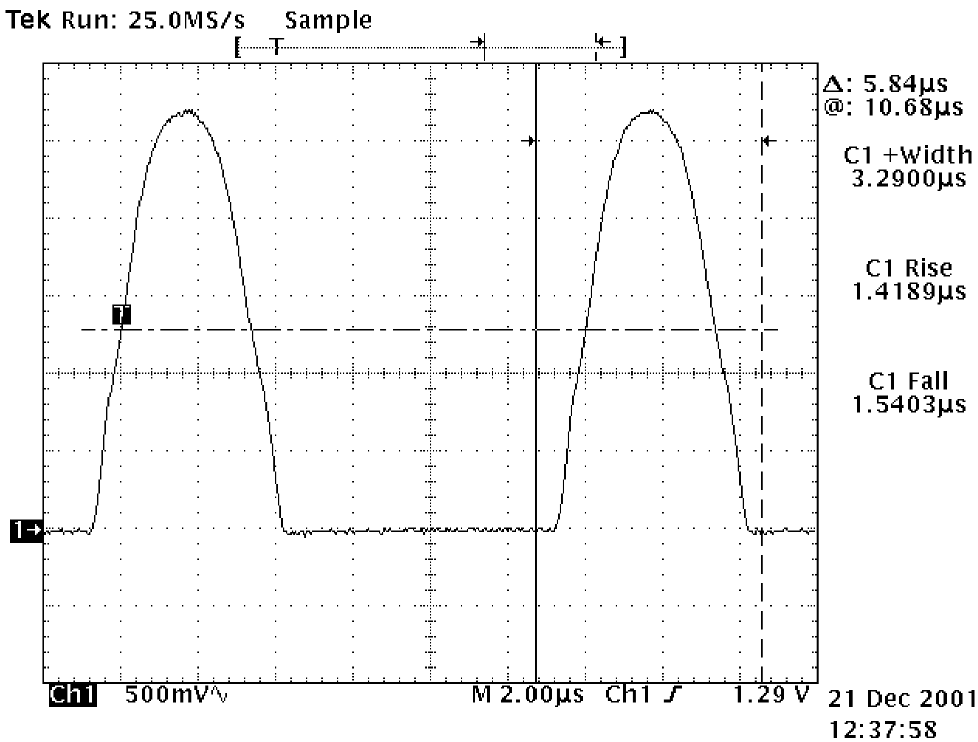

Figure 5(Channel 1X- P2 rise time, fall time and pulse width)

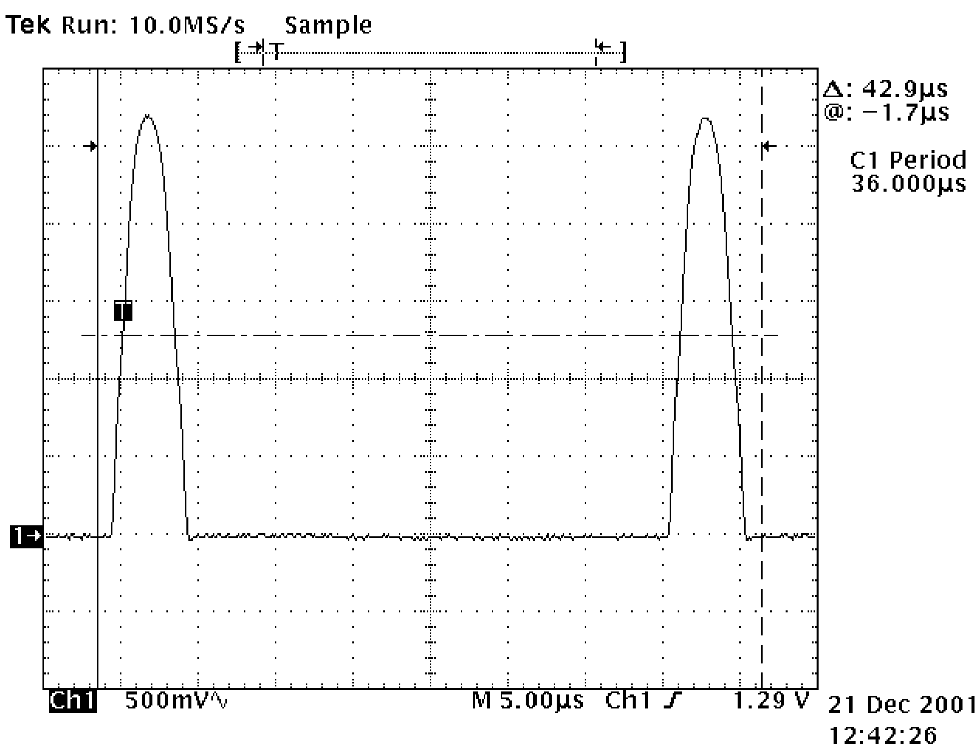

Figure 6 (Channel 1Y pulse spacing between P1 and P2)

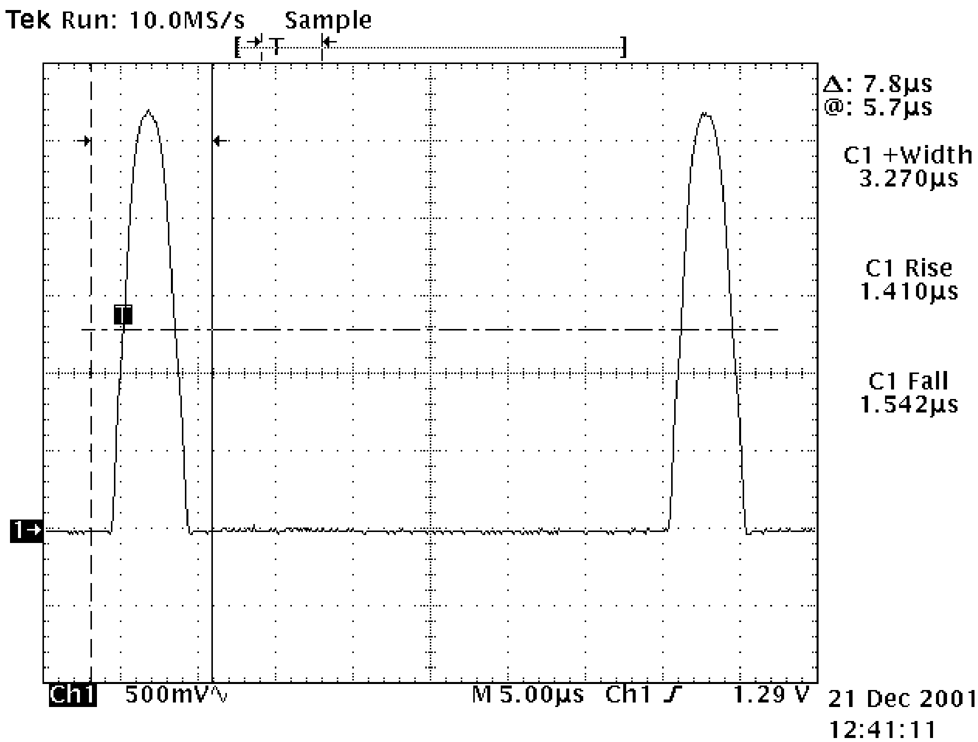

Figure 7 (Channel 1Y- P1 rise time, fall time and pulse width)

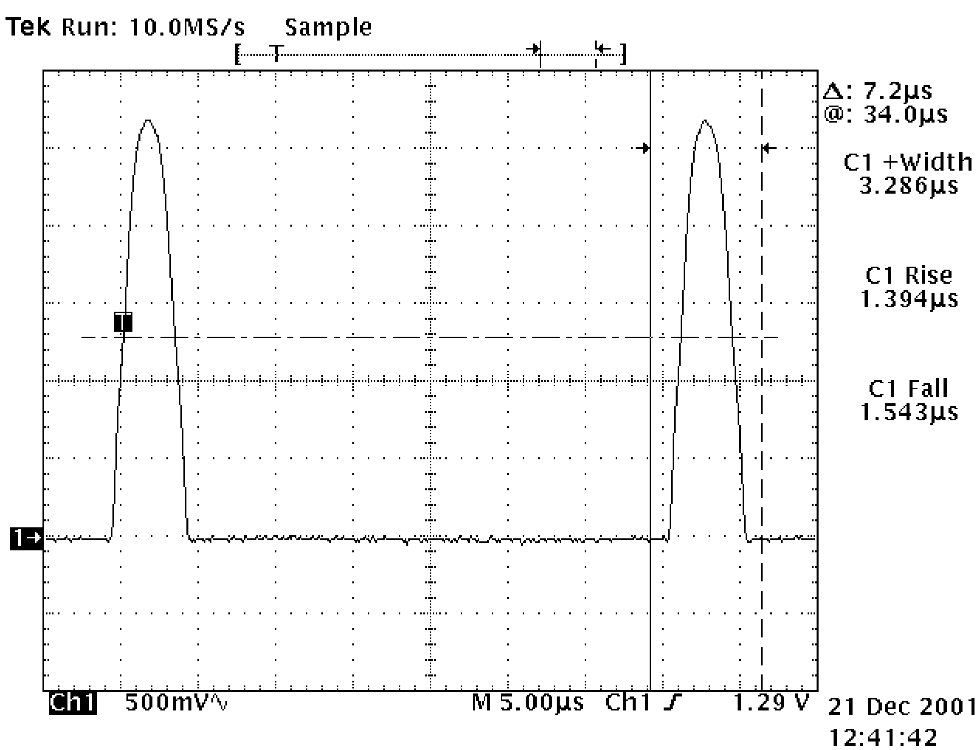

Figure 8 (Channel 1Y- P2 rise time, fall time and pulse width)

1.3 Occupied Bandwidth

1.3.1 Requirements

FCC Sec. §2.989
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency, limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:
(i)Transmitters designed for other types of modulation- when modulated by an appropriate signal of sufficient amplitude to be representative of the type of service in which used. A description of the input signal should be supplied.

FCC Sec. § 87.135
(a)Occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5 percent of the total mean power of a given emission

The DME-4000 emission type as defined in §2.201 is M1D. The necessary bandwidth as defined in §2.202 is calculated from formula

$$Bn=2K/t$$

Bn= Necessary bandwidth

K= is a numerical factor which is defined for M1D emission ,per §2.202 (g)-Table of necessary bandwidth (Radio- relays system……), to be 1.6

t= pulse duration (defined per RTCA/DO-189 to be 3.5 microseconds +/- 0.5 microseconds at 50% points). For the purpose of calculation we will consider the worse case of the pulse width which is 3.0 microseconds.

Assuming minimum allowable pulse duration of 3.0 microseconds, then

$$Bn=2(1.6)/3 \text{ X } 10^{-6} =1.0667 \text{ MHz}$$

1.1 MHz

Thus, the complete emission designation according to §2.201 is 1M10M1D

1.3.2 Test Procedure

As determined from the above calculation the necessary bandwidth for the DME-4000 is 1.0667 MHz.
The occupied bandwidth data was recorded with the DME-4000 setup as shown in Figure 9. The occupied bandwidth data was taken on channels 1X, 64X and 126X using the built-in occupied bandwidth function of the HP8562A Spectrum Analyzer.

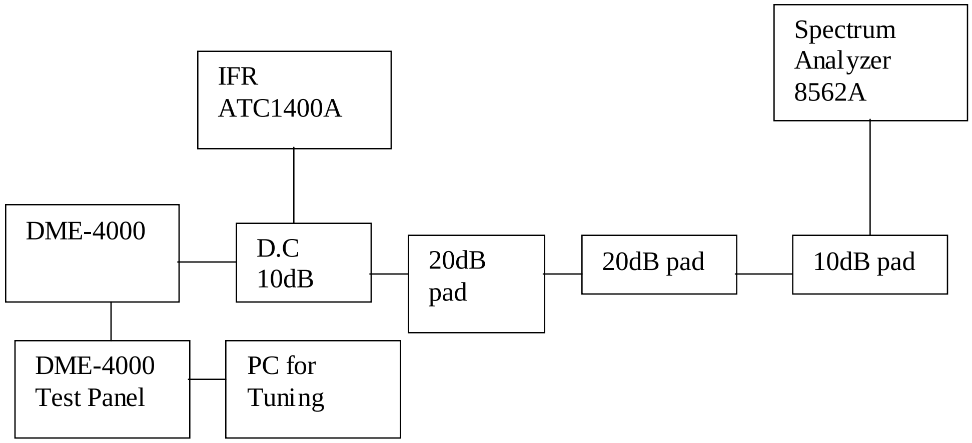

Figure 9

1.3.2.1 Test Equipment List

Qty	Control number	Description	Cal due date
1	469-0049-425	HP 8562E Spectrum Analyzer	12-31-2002
1	469-0069-632	Weinschel model 1, 10dB Attenuator	08-31-2002
1	460-0071-283	Weinschel 35-20, 20dB Attenuator	12-31-2003
1	460-0071-281	Weinschel 35-20, 20dB Attenuator	10-31-2005
1	469-0071-001	IFR ATC-1400, DME Test Set	5-31-2002
1	469-0066-574	Narda 3002-10, 10 dB Coaxial Directional Coupler	11-30-2003
1	469-0069-446	Tektronix TDS724D Digital Oscilloscope	11-30-2002
1	469-0069-098	HP E3631A, Power Supply	3-31-2002
1	S/N US03500533	HP VL600 Computer	N/A
1	N/A	Collins DME-4000 Top Level Interconnect	N/A
1	Not Required	DME-4000 Test Set Panel	N/A

1.3.3 Test Results

Type Number:	**DME-4000**		Serial Number:	**GX8Y**
Date Tested:	**12/17/01**		Tested by: Test Location:	**Jim Ledebur** **Melbourne Engineering**

Actual spectral is shown in Figure 10 thru Figure 21.

DME Channel	Transmitted Frequency (MHz)	[1]Frequency with respect to nominal within which 99% of energy is confined. (MHz)	Occupied bandwidth (KHz)
1X	1025	1025.0100	800
1Y	1025	1025.0050	816
64X	1088	1088.0085	683
64Y	1088	1088.003	700
126X	1150	1150.0115	683
126Y	1150	1150.0055	683

[1]-The frequency data was recorded directly from the spectrum analyzer using the marker. After the spectrum analyzer calculates the 99% power density the marker key marks the upper frequency threshold for the 99% power density boundaries. The measured occupied bandwidth was divided by two and the answer was subtracted from the upper frequency threshold point, marked by the marker key function, to arrive at this frequency number.

Test results indicates the DME 4000 meets and exceeds the FCC requirements.

Compliance with the principal requirements is demonstrated.

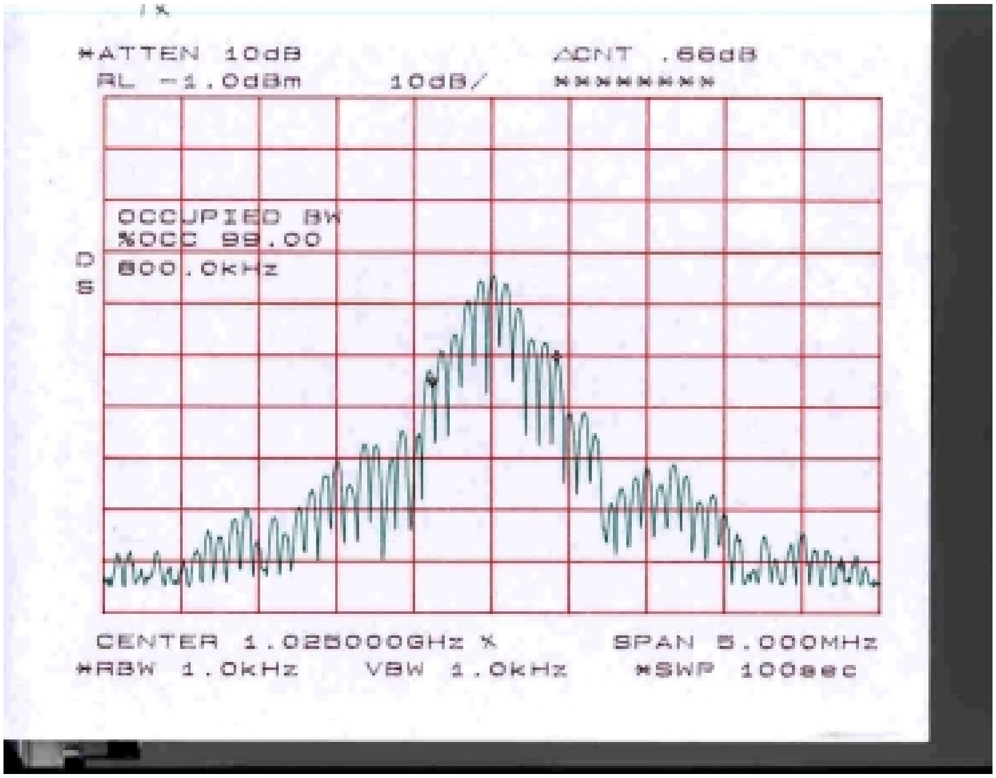

Figure 10 Pulse Spectrum of channel 1X showing 99% occupied bandwidth

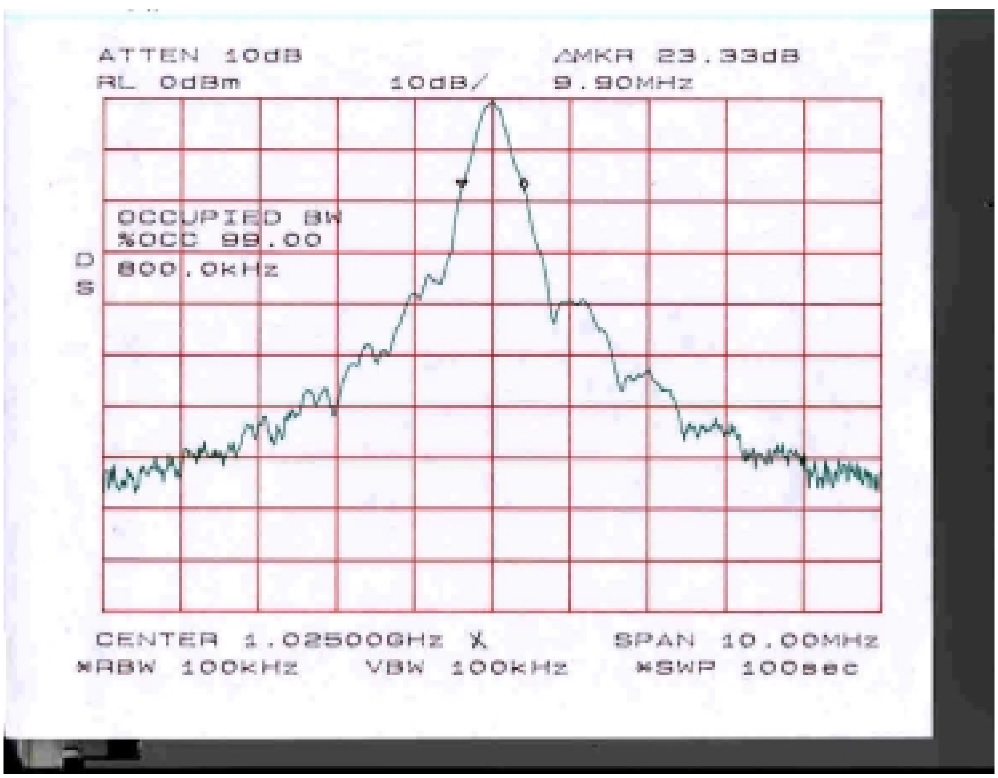

Figure 11 Pulse Spectrum of channel 1X showing 99% occupied bandwidth

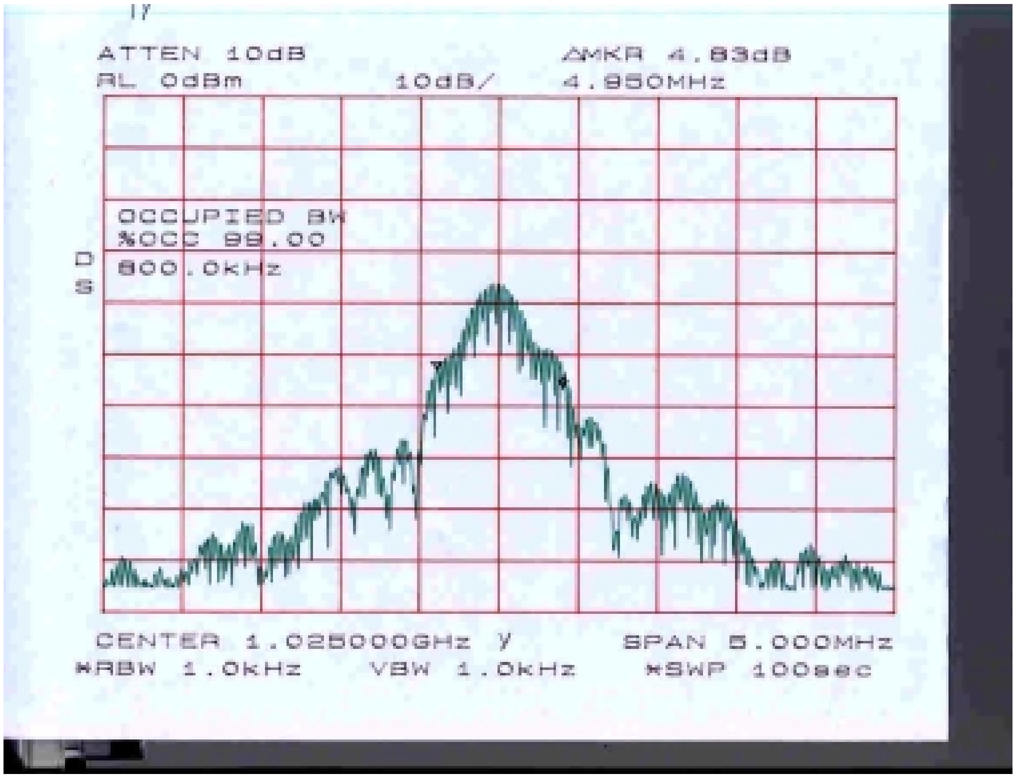

Figure 12 Pulse Spectrum of channel 1Y showing 99% occupied bandwidth

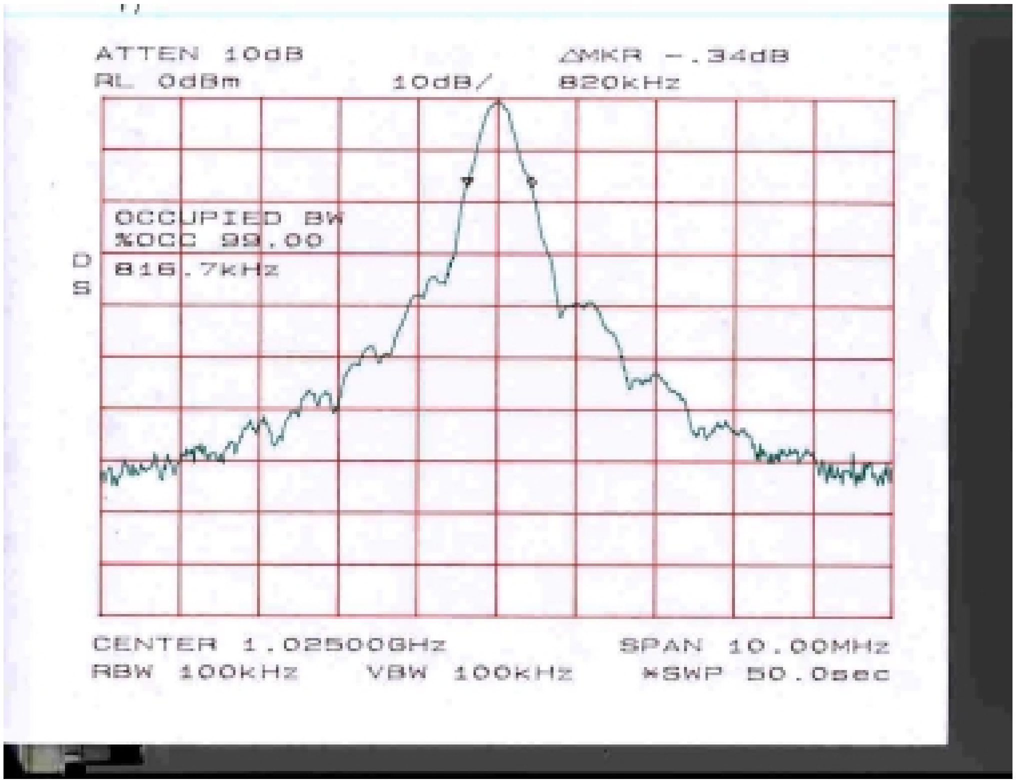

Figure 13 Pulse Spectrum of channel 1Y showing 99% occupied bandwidth

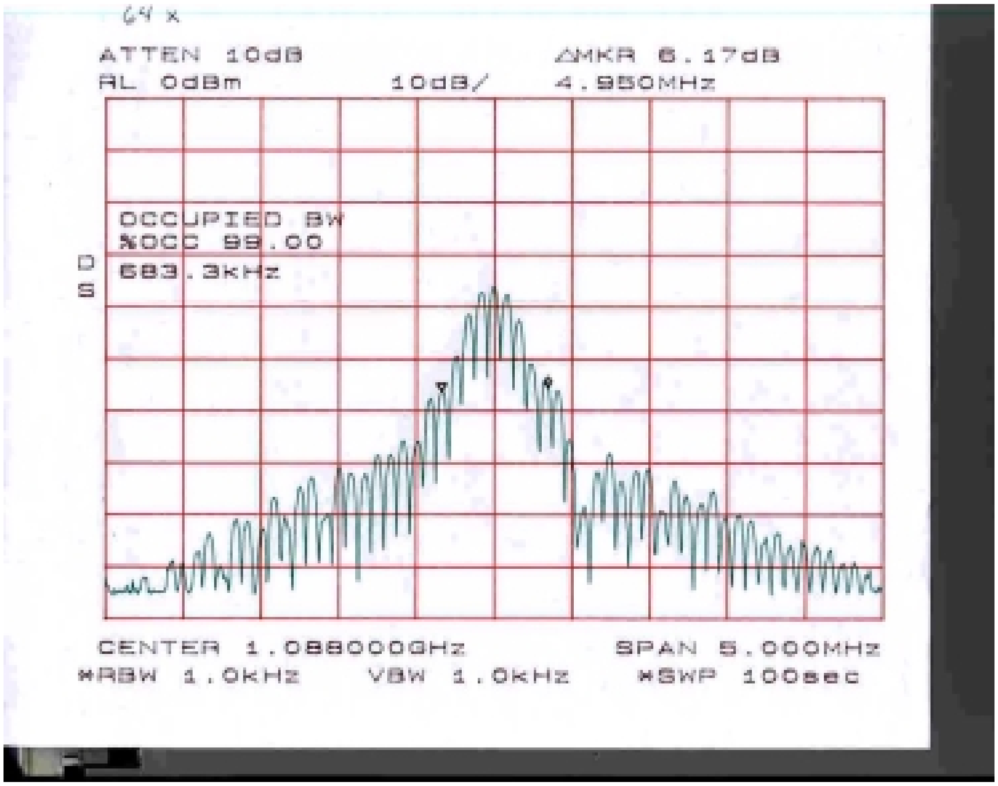

Figure 14 Pulse Spectrum of channel 64X showing 99% occupied bandwidth

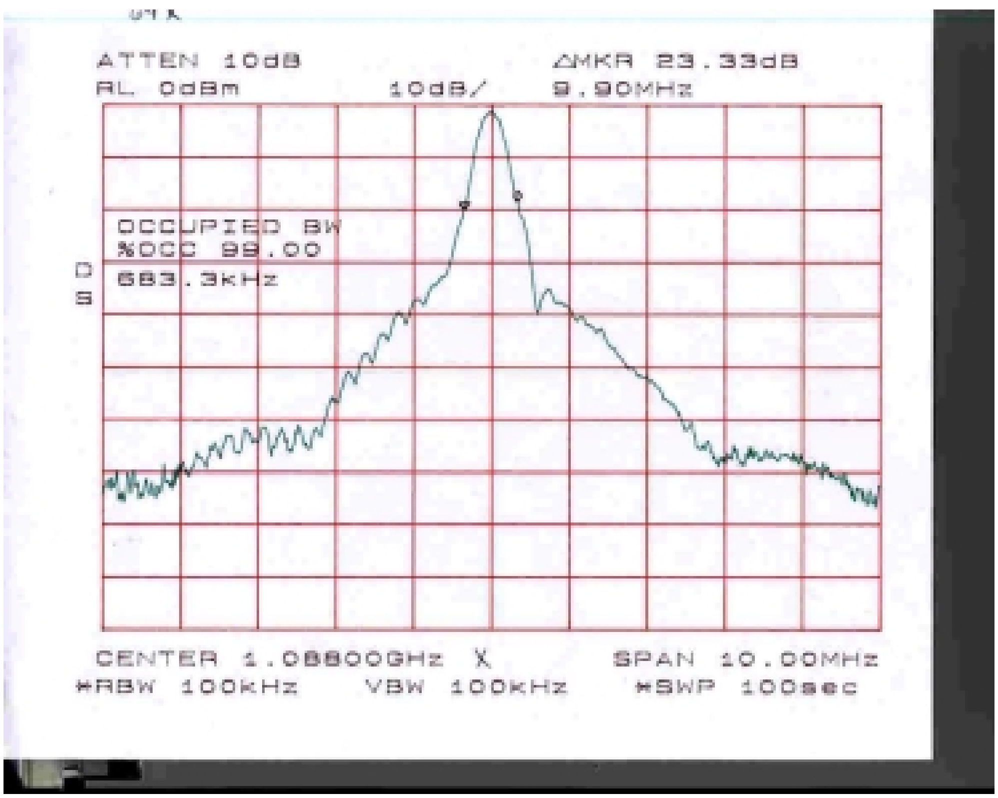

Figure 15 Pulse Spectrum of channel 64X showing 99% occupied bandwidth

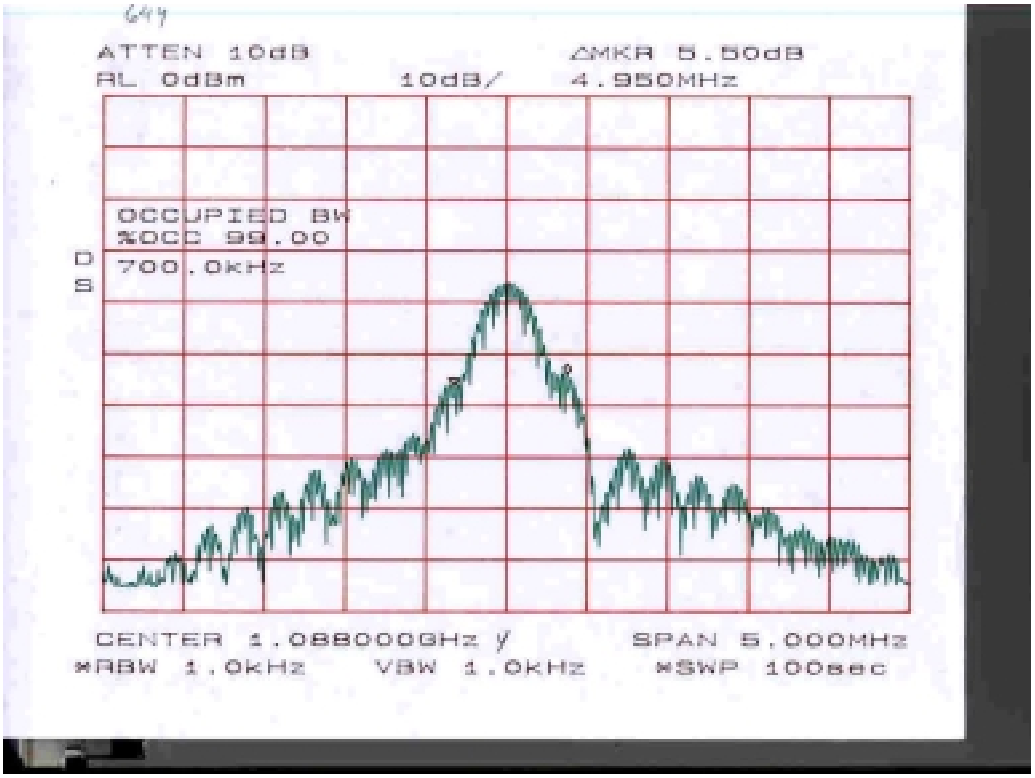

Figure 16 Pulse Spectrum of channel 64Y showing 99% occupied bandwidth

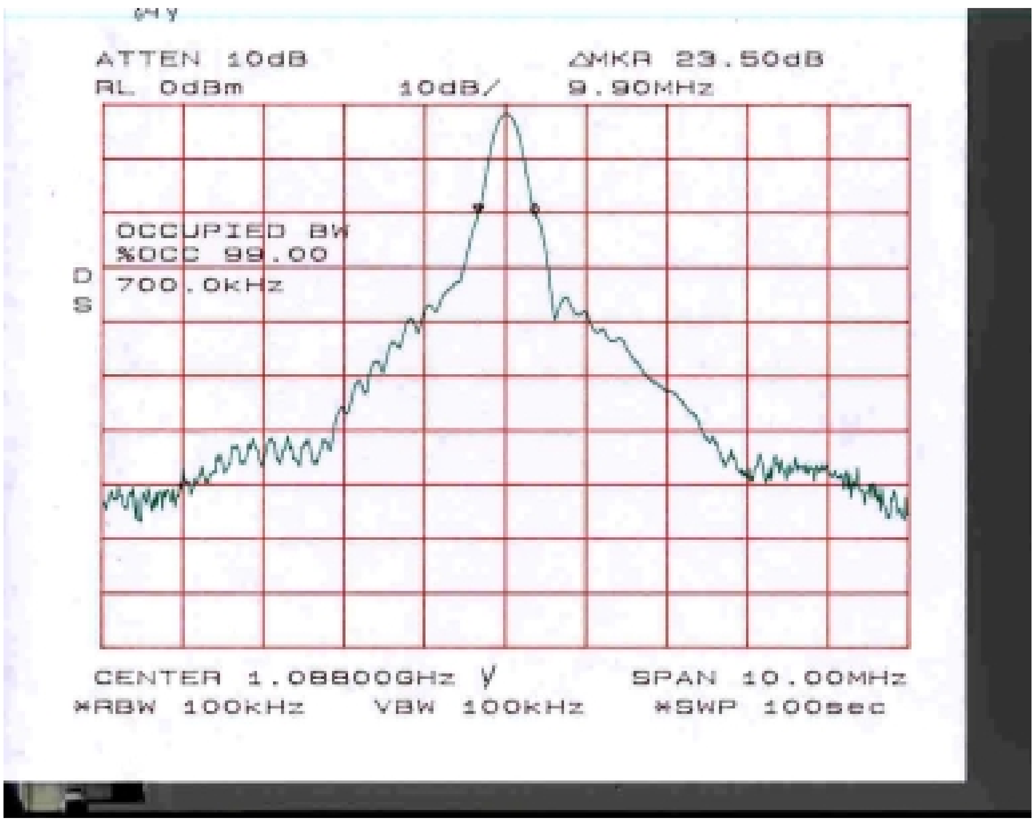

Figure 17 Pulse Spectrum of channel 64Y showing 99% occupied bandwidth

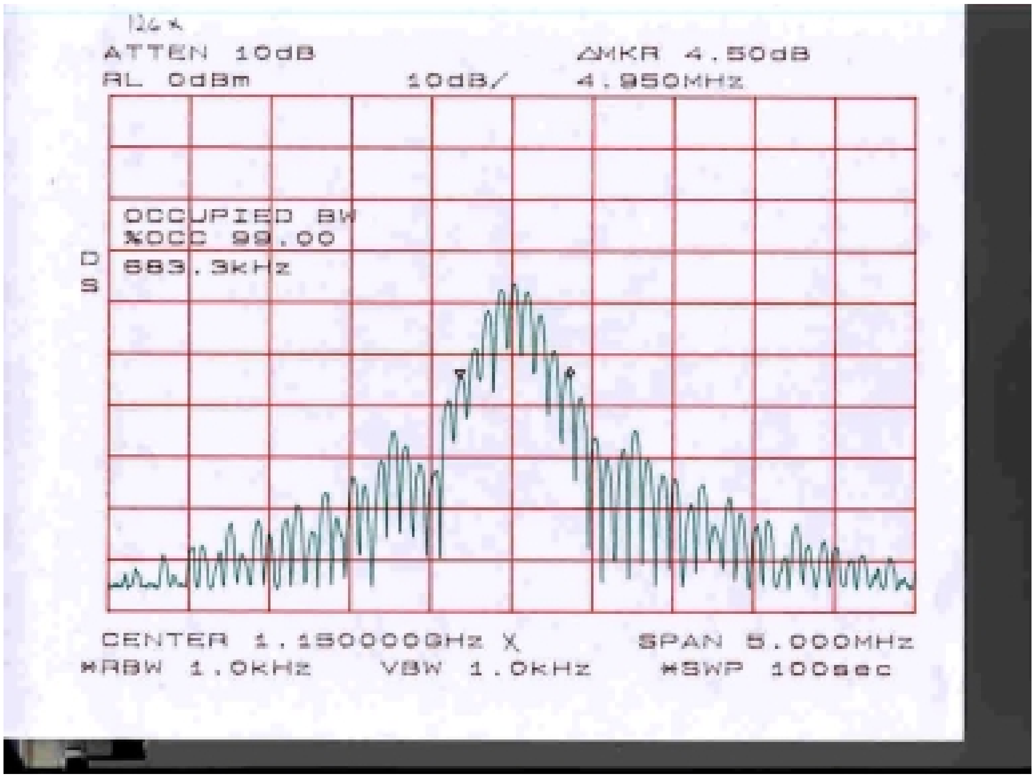

Figure 18 Pulse Spectrum of channel 126X showing 99% occupied bandwidth

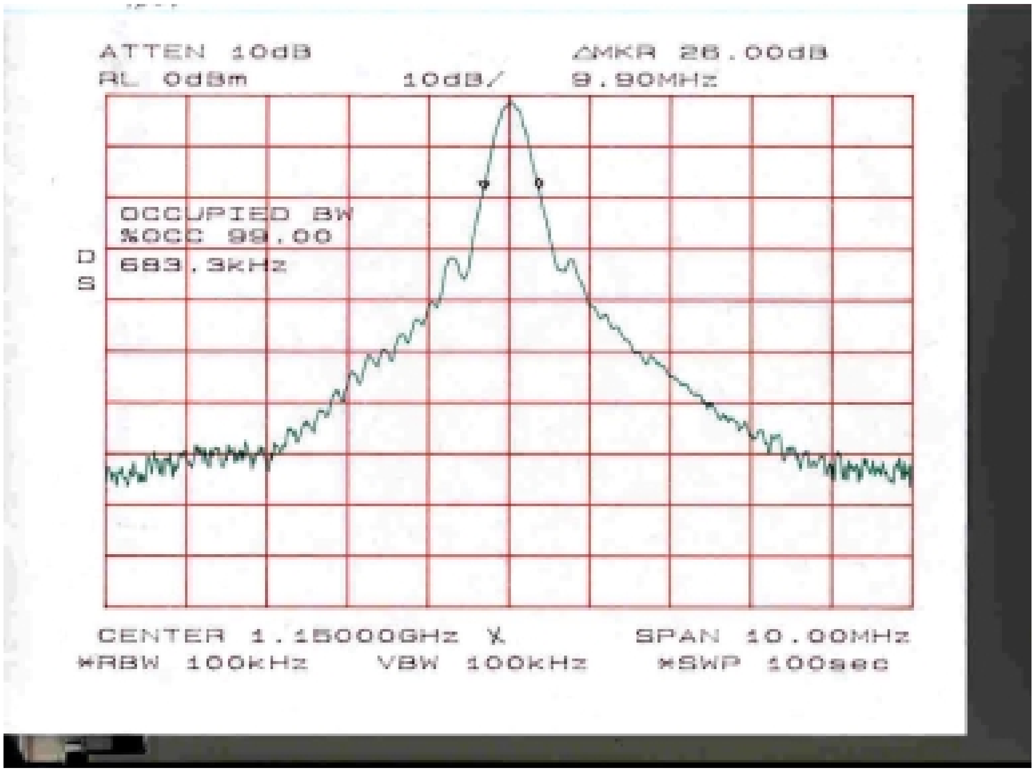

Figure 19 Pulse Spectrum of channel 126X showing 99% occupied bandwidth

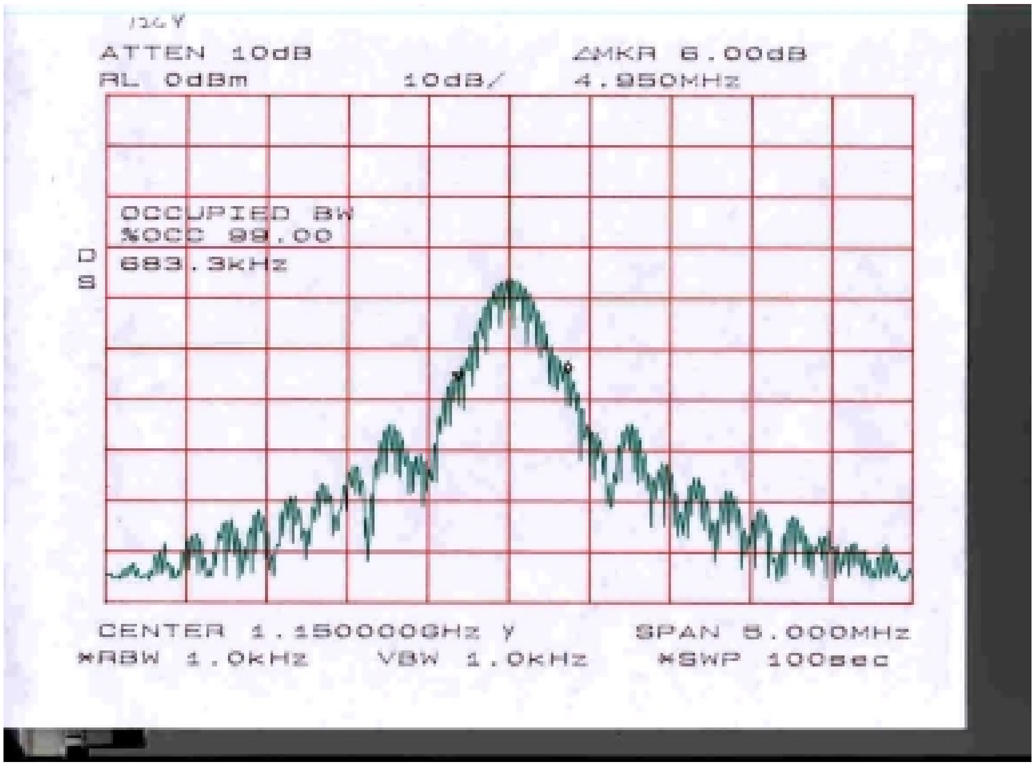

Figure 20 Pulse Spectrum of channel 126Y showing 99% occupied bandwidth

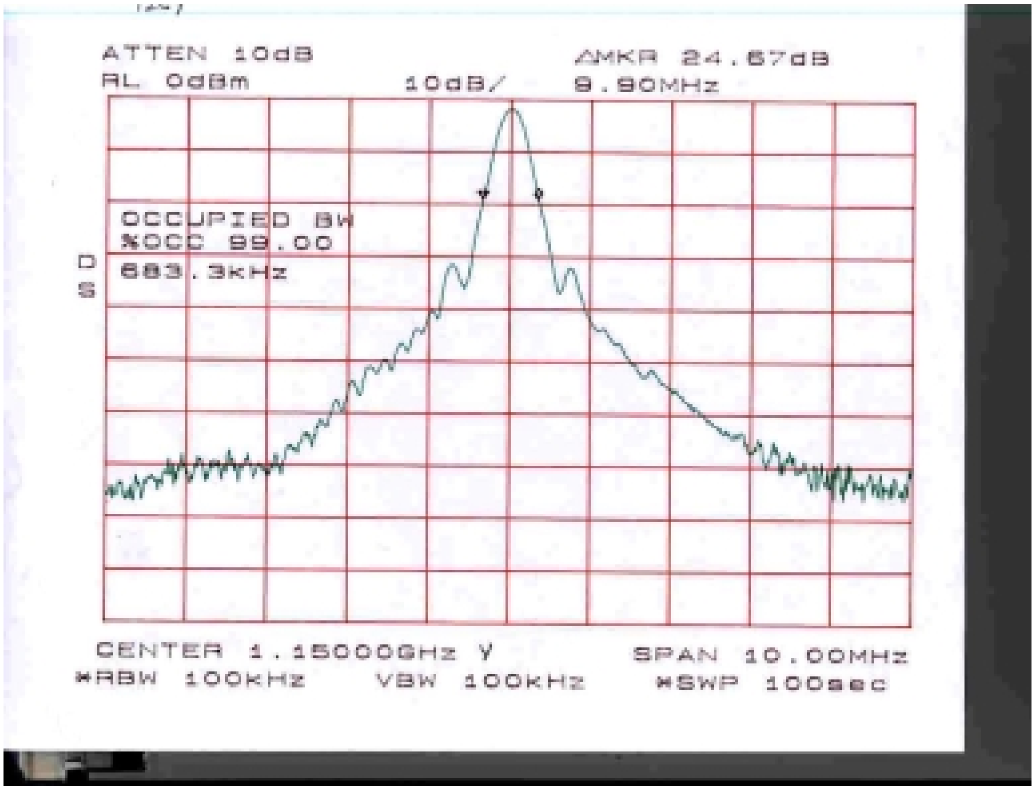

Figure 21 Pulse Spectrum of channel 126Y showing 99% occupied bandwidth

1.4 Spurious Emissions at the Antenna Terminals

1.4.1 Requirements

FCC Sec. §2.991
The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in§2.989 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

FCC Sec §87.139(d)
Except for the telemetry in the 1435-1535 MHz band, when the frequency is removed from the assigned frequency by more than 250 percent of the authorized bandwidth for aircraft stations above 30 MHz and all ground stations the attenuation must be at least 43+ 10 $\log_{10}$ PY dB.

PY= Mean power of the transmitter

The DME-4000 transmits two pulses with pulse width, measured at the 50% point, of no more than 4 micro second wide. The maximum Pulse Repetition Frequency (PRF), during search mode, is 76 Pulse Pairs per Second (PPS). The maximum output power in the lab was measured to be 580W(rounded off to 600W for the calculation).

Duty Cycle (DC) = (2 x 4 us x 76) x 100 =0.0608%

PY= 0.068 * 600W=36.48W

DME-4000 maximum spurious level = 43 + 10 $\log_{10}$ 36.48=58.62 dB

All the spurious emissions from the DME-4000 antenna port must be less than 58.62 dB.

1.4.2 Test Procedure

The DME-4000 test equipment was connected as shown in Figure 22 and the spurious emission data was collected from the antenna port using the spectrum analyzer (HP 8562A) The spurious emission response data of the DME-4000 is measured in 15 different steps. The steps are 0-500 MHz, 250-750 MHz, 750 MHz-1.25 GHz, 1.25-1.75 GHz, 1.75-2.75 GHz, 2.75-3.75 GHz, 3.75-4.75 GHz, 4.75-5.75 GHz, 5.75-6.75 GHz, 6.75-7.75 GHz, 7.75-8.75 GHz, 8.75-9.75 GHz, 9.75-10.75 GHz, 10.75-11.75 GHz and 11.75-12.75 GHz.

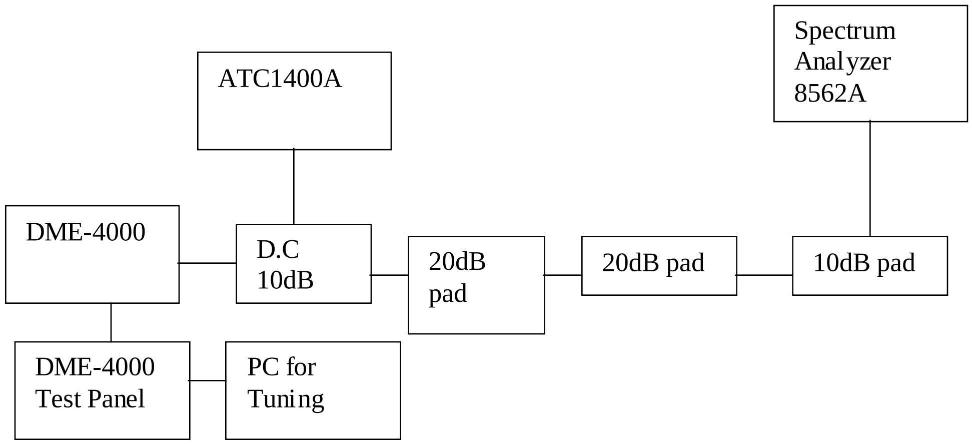

Figure 22

1.4.2.1 Test Equipment List

Qty	Control number	Description	Cal due date
1	469-0049-425	HP 8562E Spectrum Analyzer	12-31-2002
1	469-0069-632	Weinschel model 1, 10dB Attenuator	08-31-2002
1	460-0071-283	Weinschel 35-20, 20dB Attenuator	12-31-2003
1	460-0071-281	Weinschel 35-20, 20dB Attenuator	10-31-2005
1	469-0071-001	IFR ATC-1400, DME Test Set	5-31-2002
1	469-0066-574	Narda 3002-10, 10 dB Coaxial Directional Coupler	11-30-2003
1	469-0069-446	Tektronix TDS724D Digital Oscilloscope	11-30-2002
1	469-0069-098	HP E3631A, Power Supply	3-31-2002
1	S/N US03500533	HP VL600 Computer	N/A
1	N/A	Collins DME-4000 Top Level Interconnect	N/A
1	Not Required	DME-4000 Test Set Panel	N/A

1.4.3 Test Results

Type Number:	**DME-4000**		Serial Number:	**GX8Y**
Date Tested:	**12/19/01**		Tested by: Test Location:	**Jim Ledebur** **Melbourne Engineering**

Figure 23 thru Figure 37 shows the spurious emission of the DME-4000 with the unit tuned to channel 126x(1150 MHz). From the data captured and shown below all the spurious emission level described in this exhibit are seen to have peak powers more than 58.62 dB below the peak power at the transmitter fundamental frequency. The DME-4000 transmitter attenuation of spurious outputs meets and exceeds the FCC requirement. Compliance with the principal requirements is demonstrated.

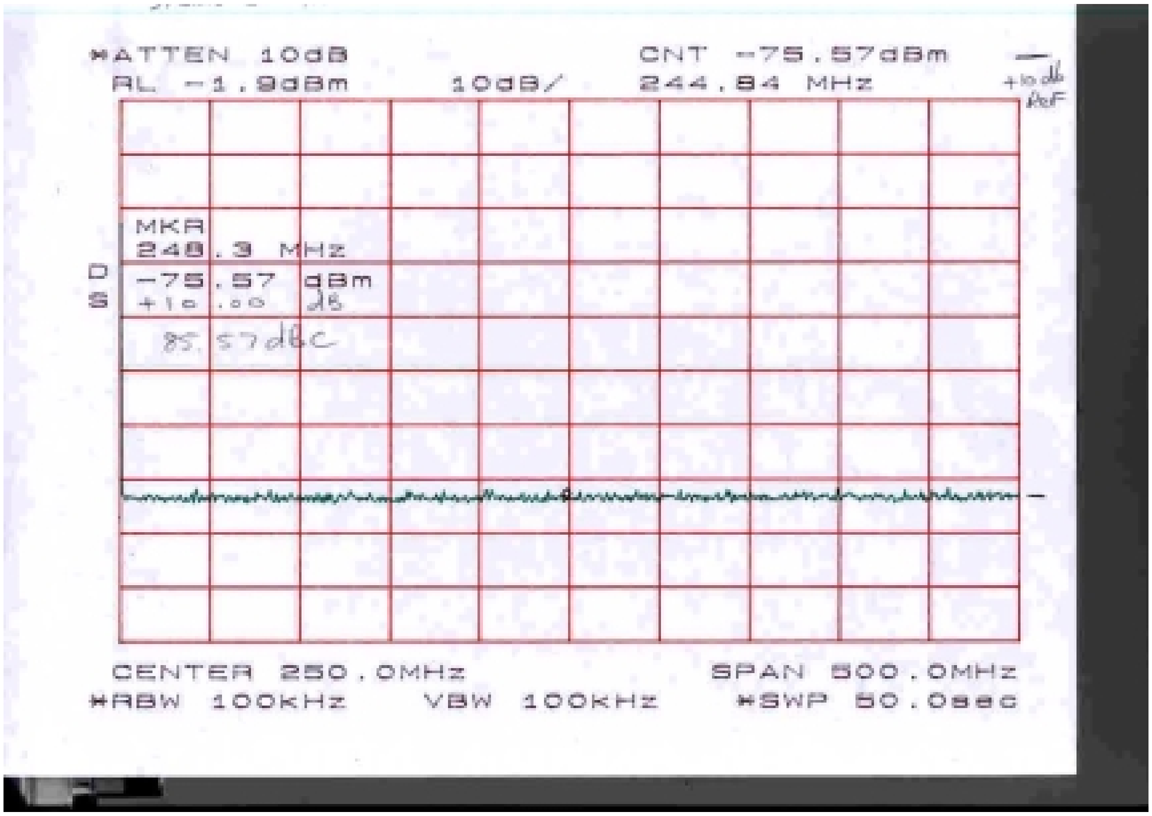

Figure 23Spurious Emission at the Antenna Port 0 to 500 MHz

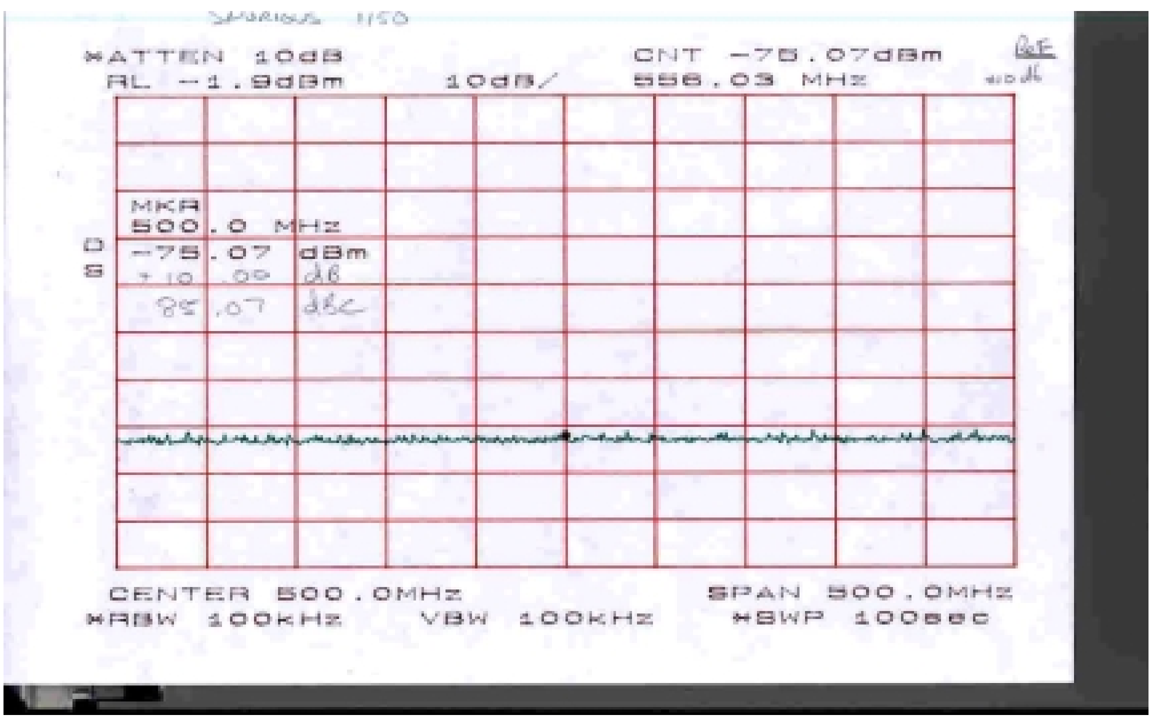

Figure 24 Spurious Emission at the Antenna Port 250 to 750 MHz

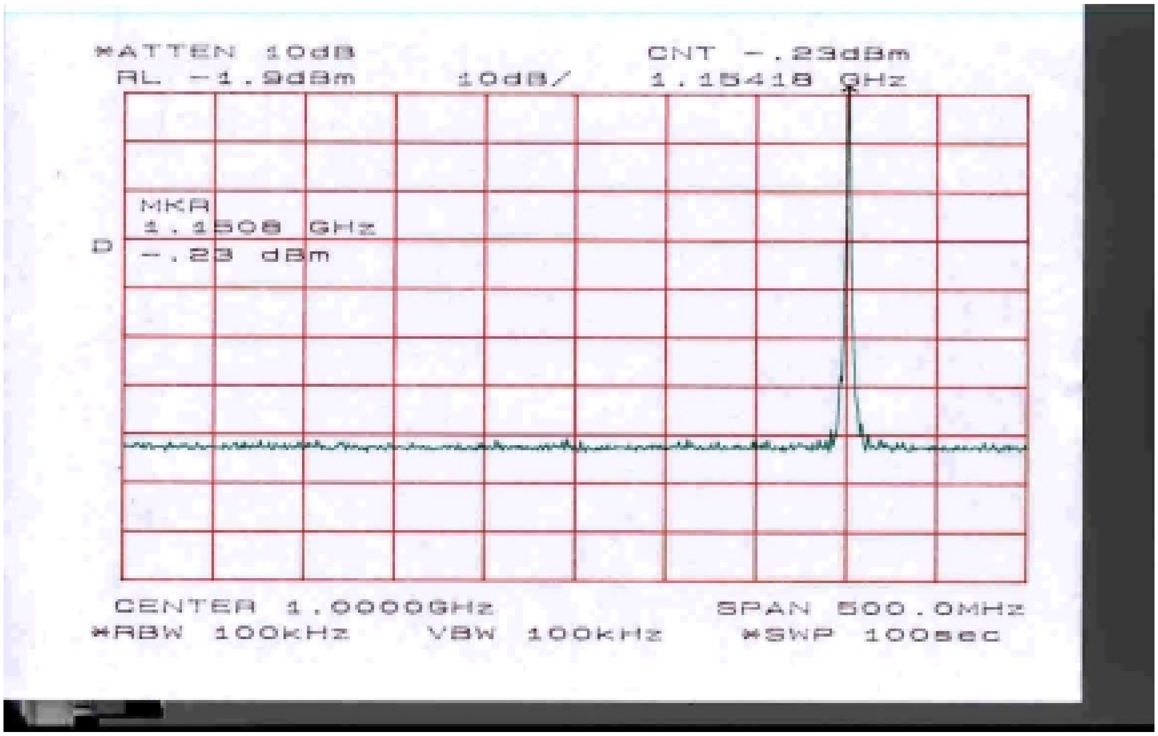

Figure 25 Spurious Emission at the Antenna Port 750 to 1250 MHz and the transmitter spectrum (126X)

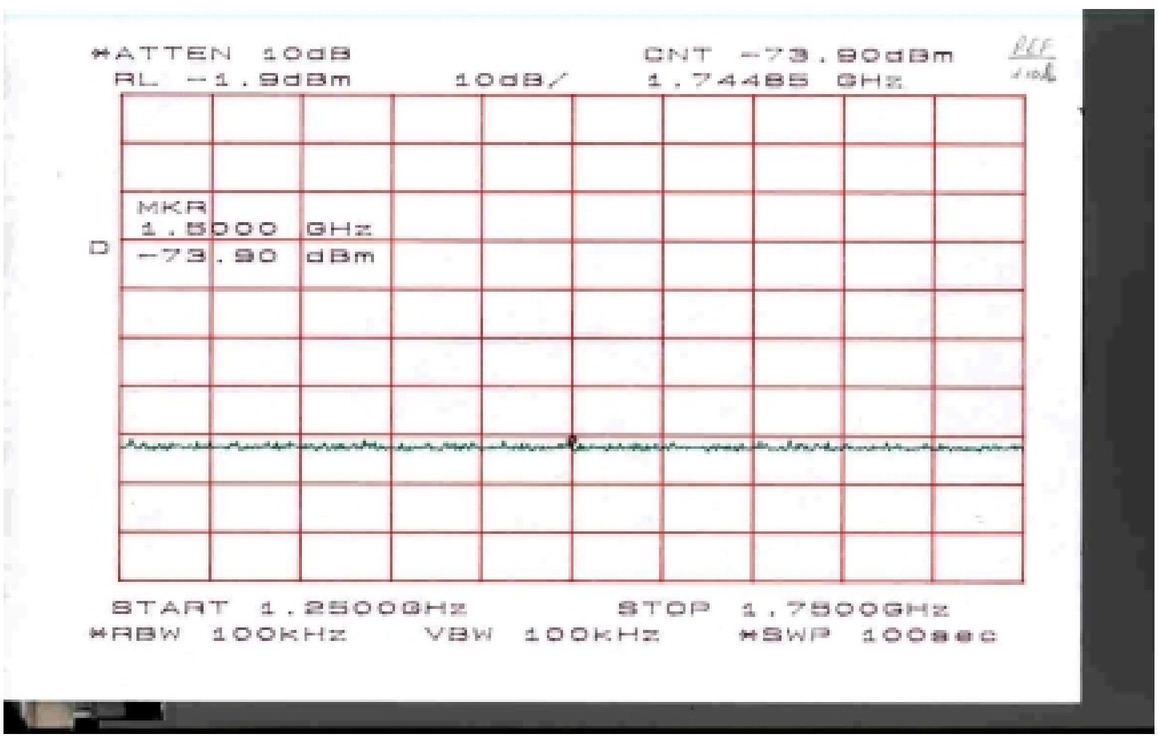

Figure 26 Spurious Emission at the Antenna Port 1250 to 1750 MHz

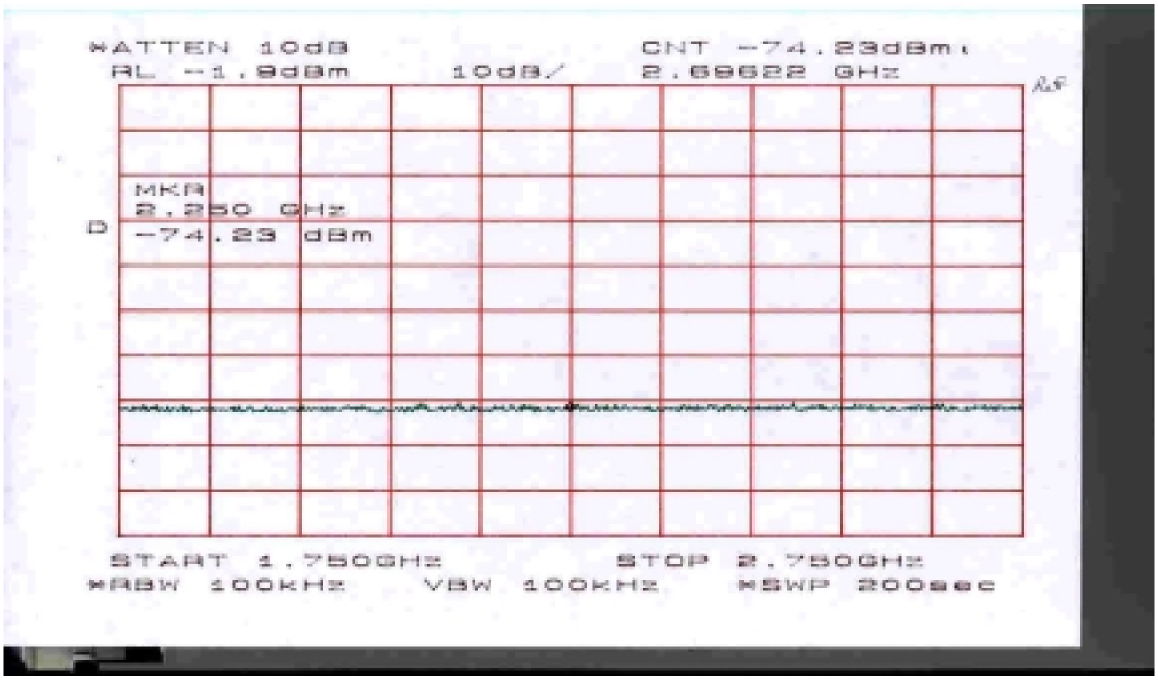

Figure 27 Spurious Emission at the Antenna Port 1.75 to 2.750 GHz

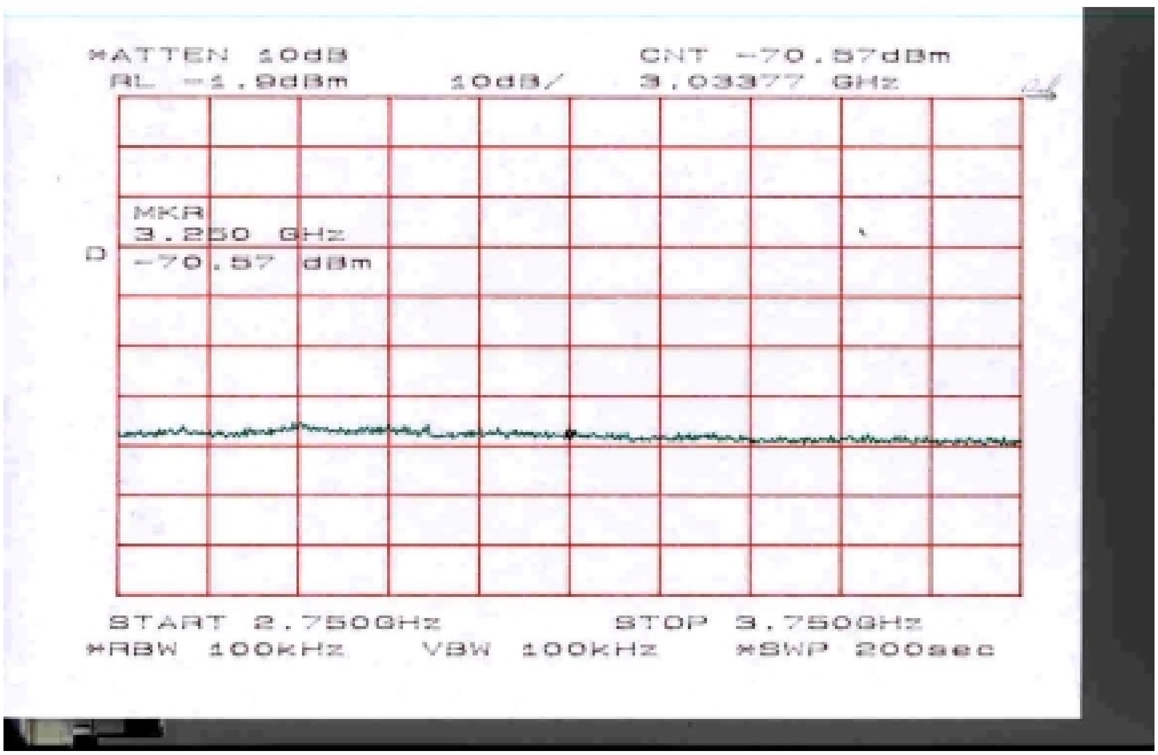

Figure 28 Spurious Emission at the Antenna Port 2.75 to 3.750 GHz

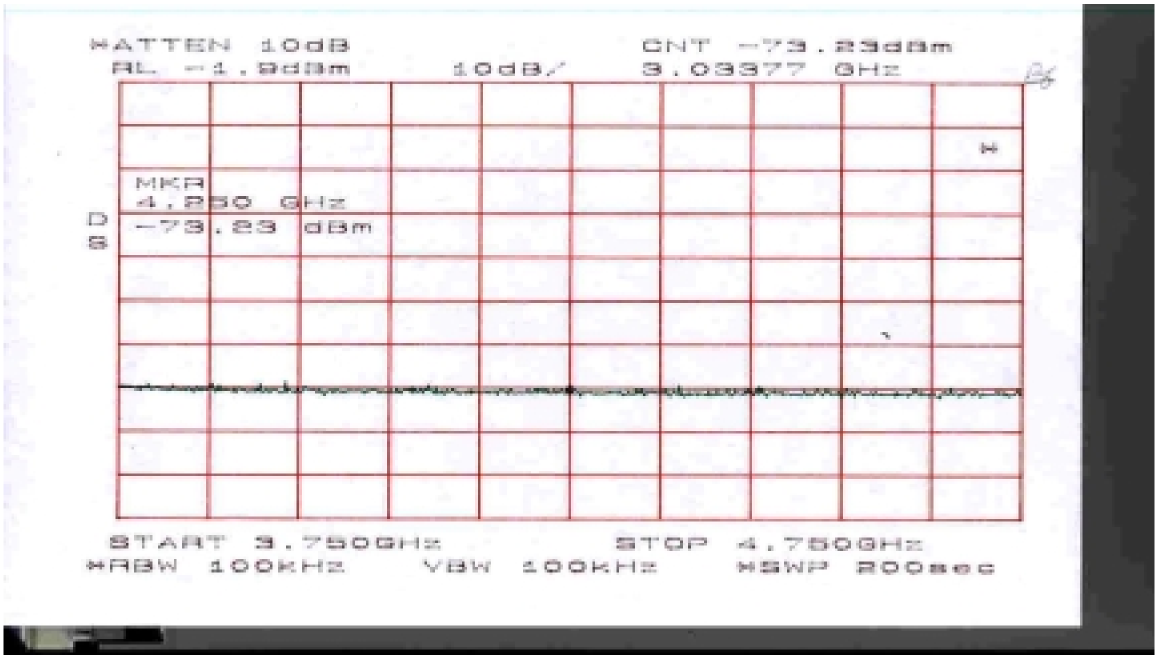

Figure 29 Spurious Emission at the Antenna Port 3.75 to 4.750 GHz

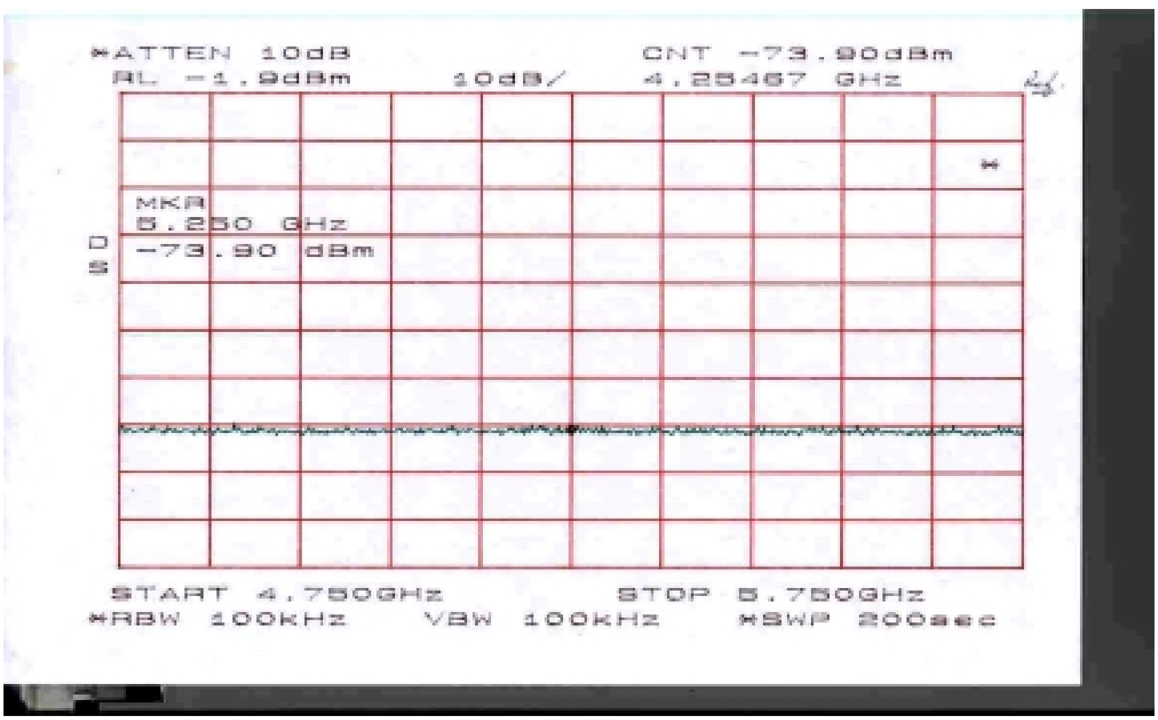

Figure 30 Spurious Emission at the Antenna Port 4.75 to 5.750 GHz

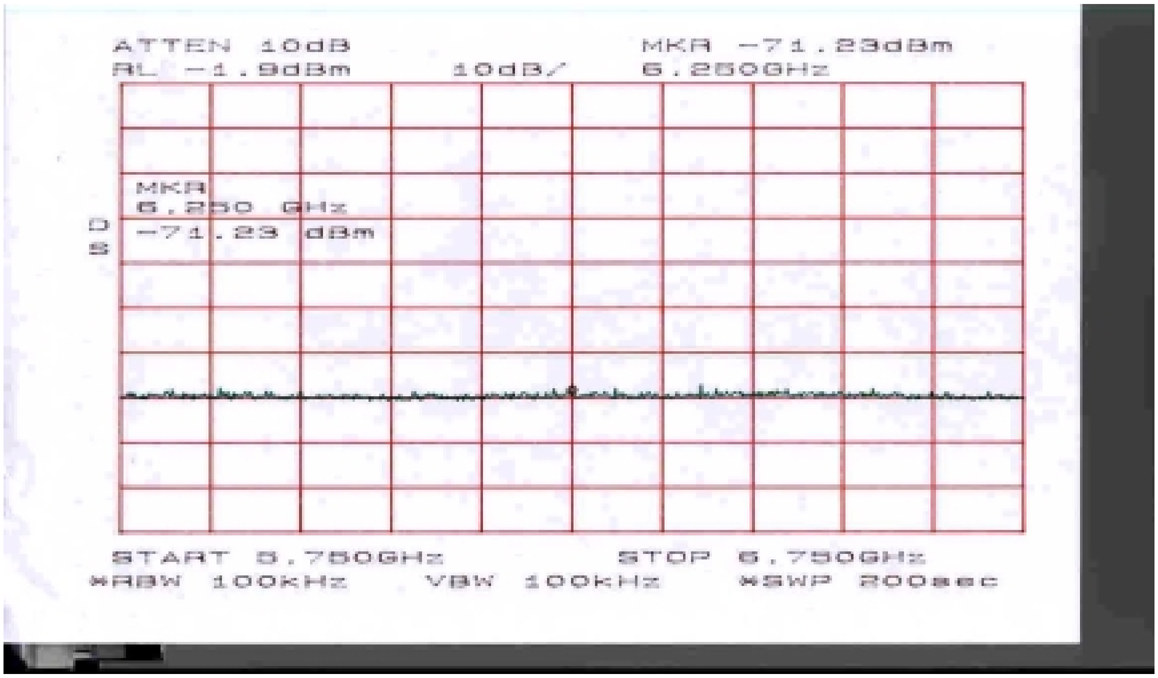

Figure 31 Spurious Emission at the Antenna Port 5.75 to 6.750 GHz

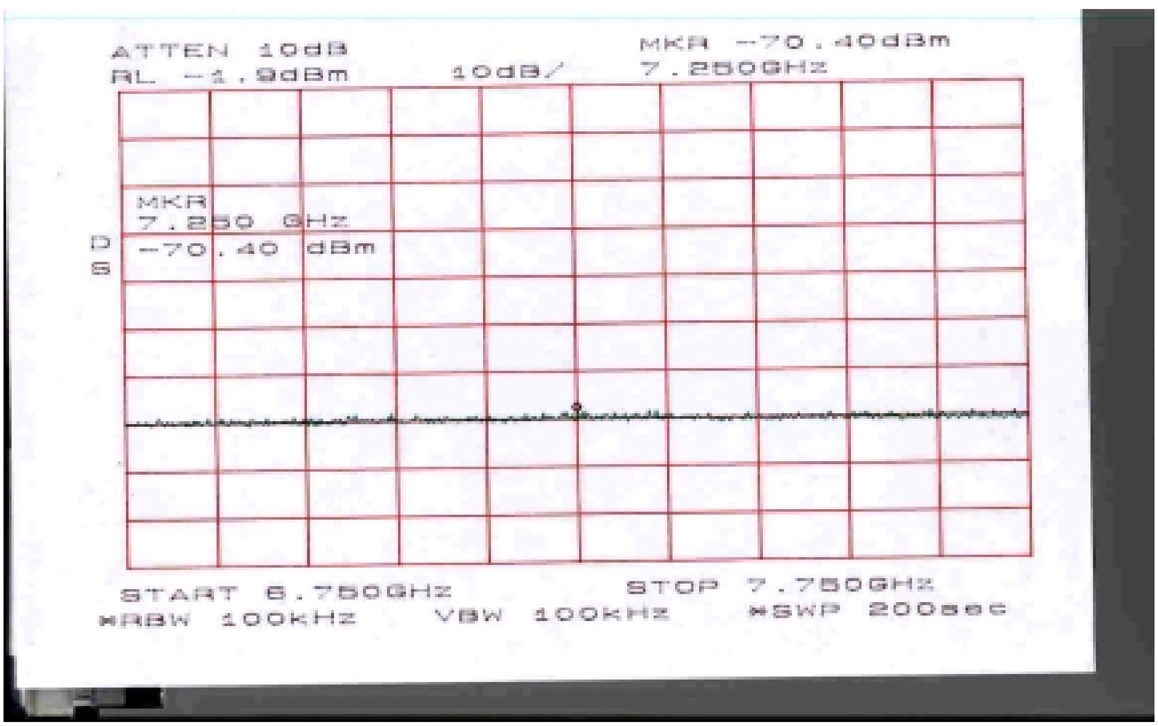

Figure 32 Spurious Emission at the Antenna Port 6.75 to 7.750 GHz

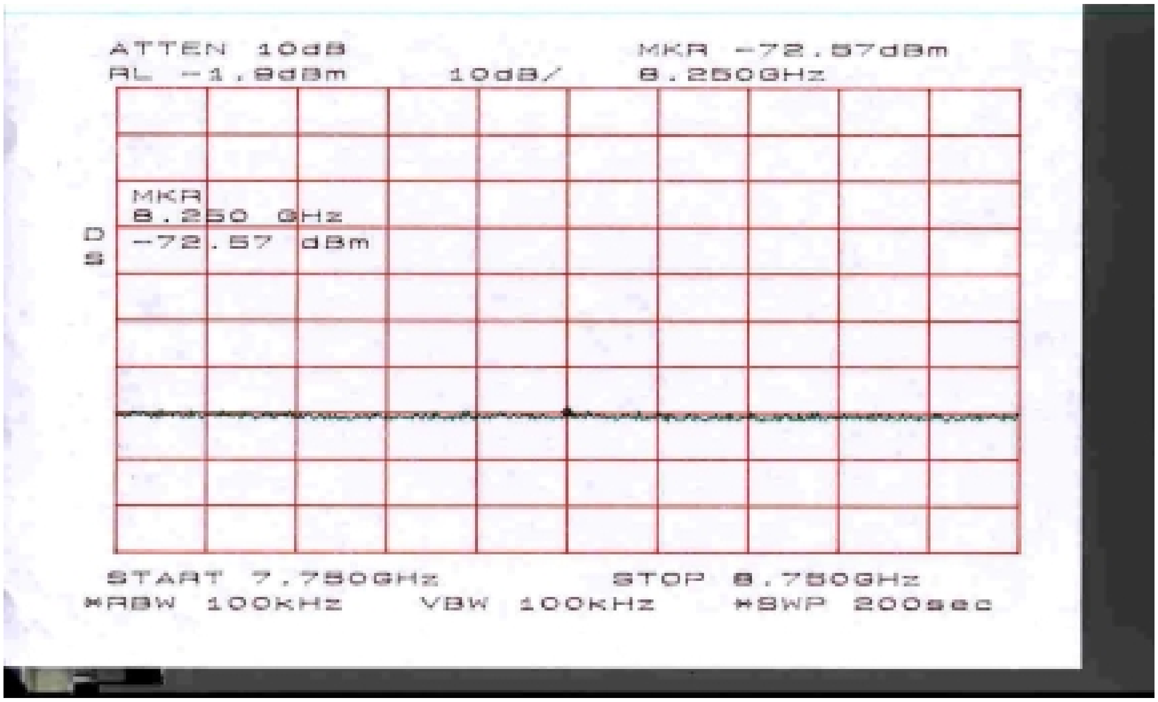

Figure 33 Spurious Emission at the Antenna Port 7.75 to 8.750 GHz

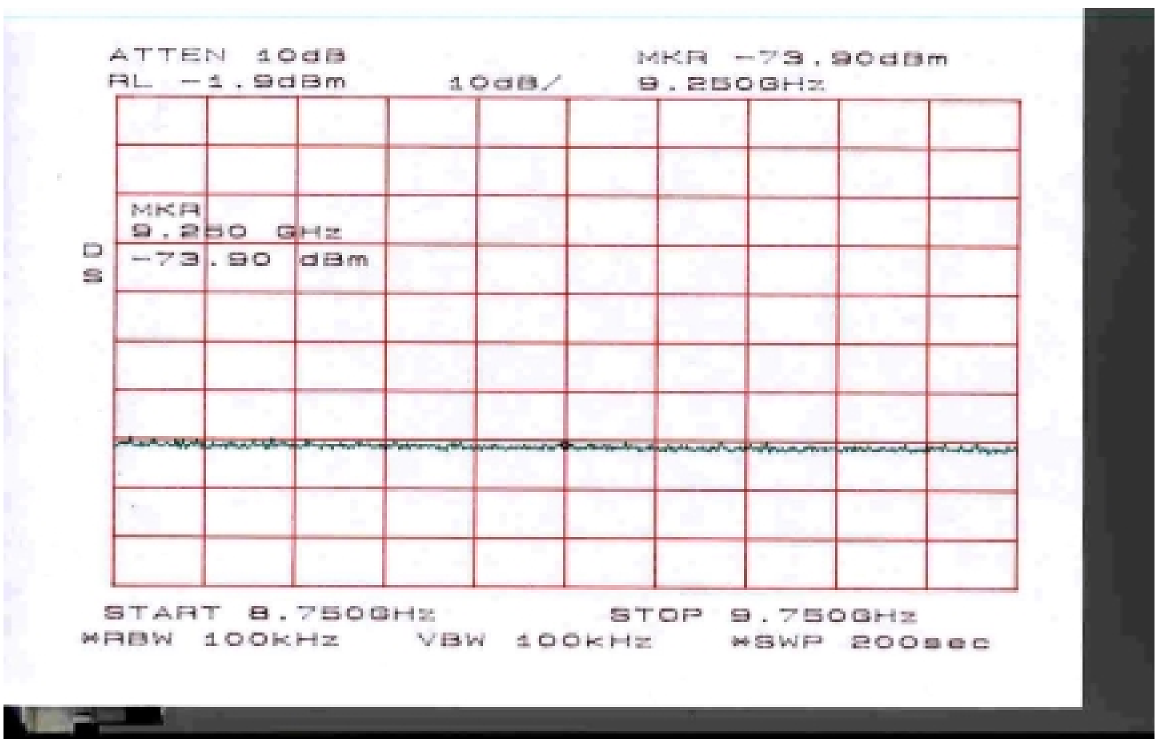

Figure 34 Spurious Emission at the Antenna Port 8.75 to 9.750 GHz

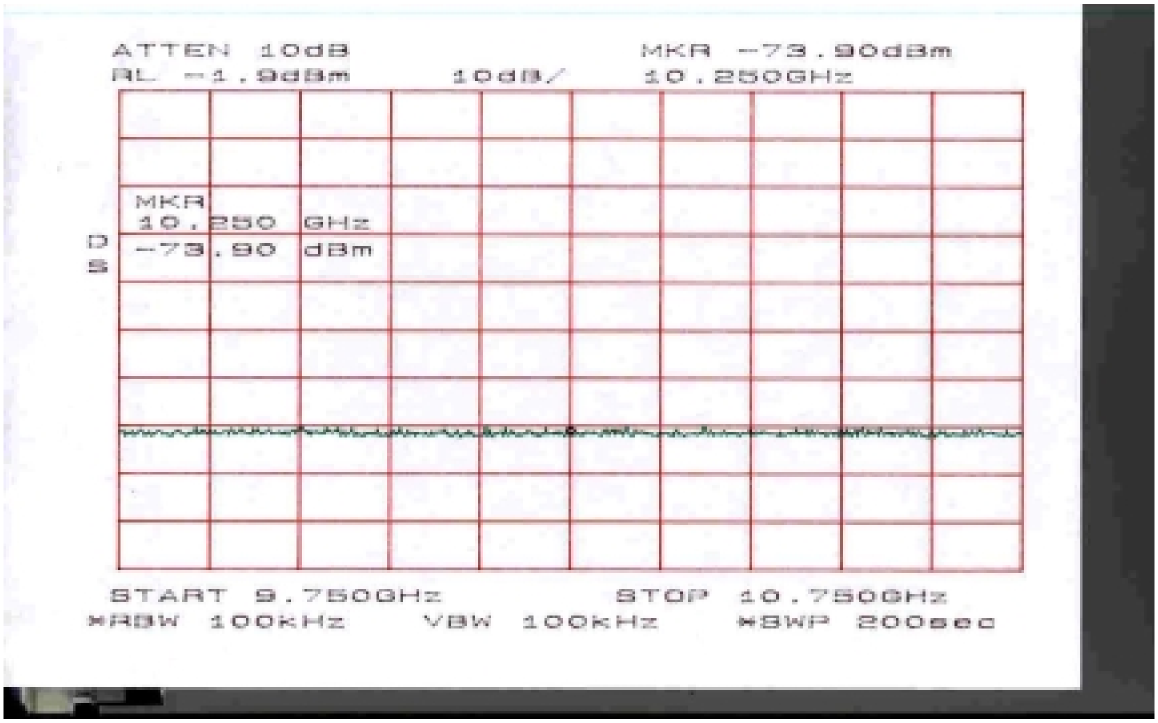

Figure 35 Spurious Emission at the Antenna Port 9.75 to 10.750 GHz

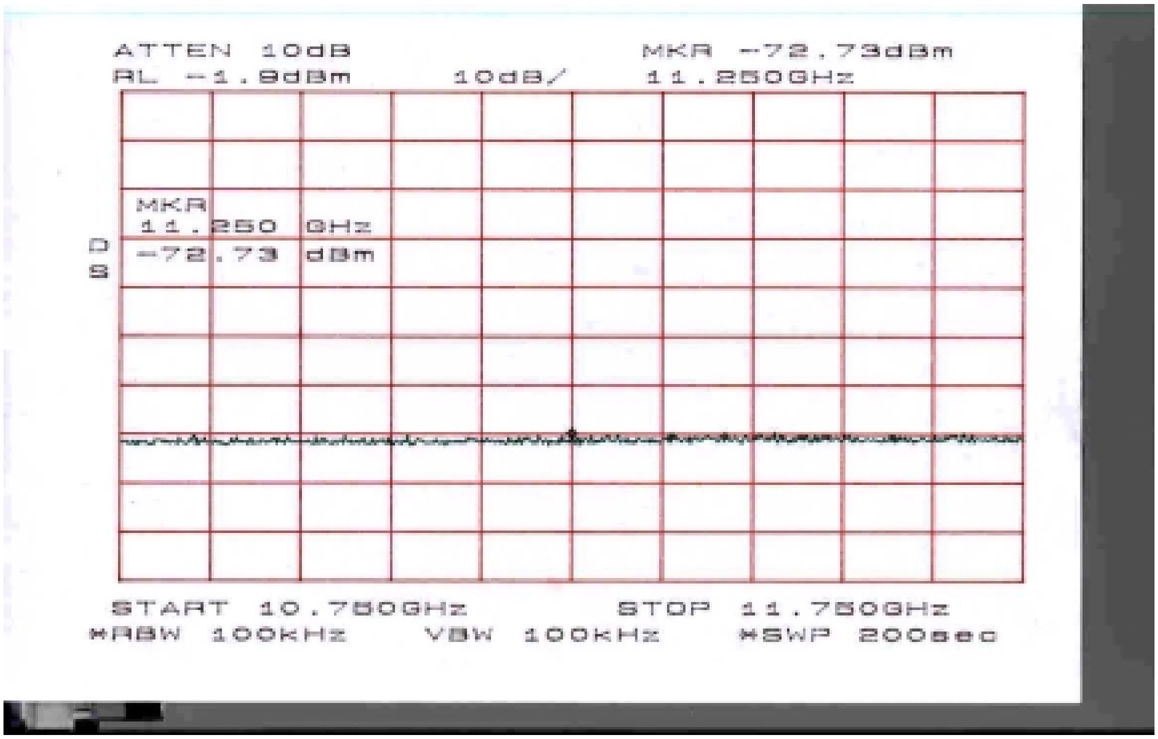

Figure 36 Spurious Emission at the Antenna Port 10.75 to 11.750 GHz

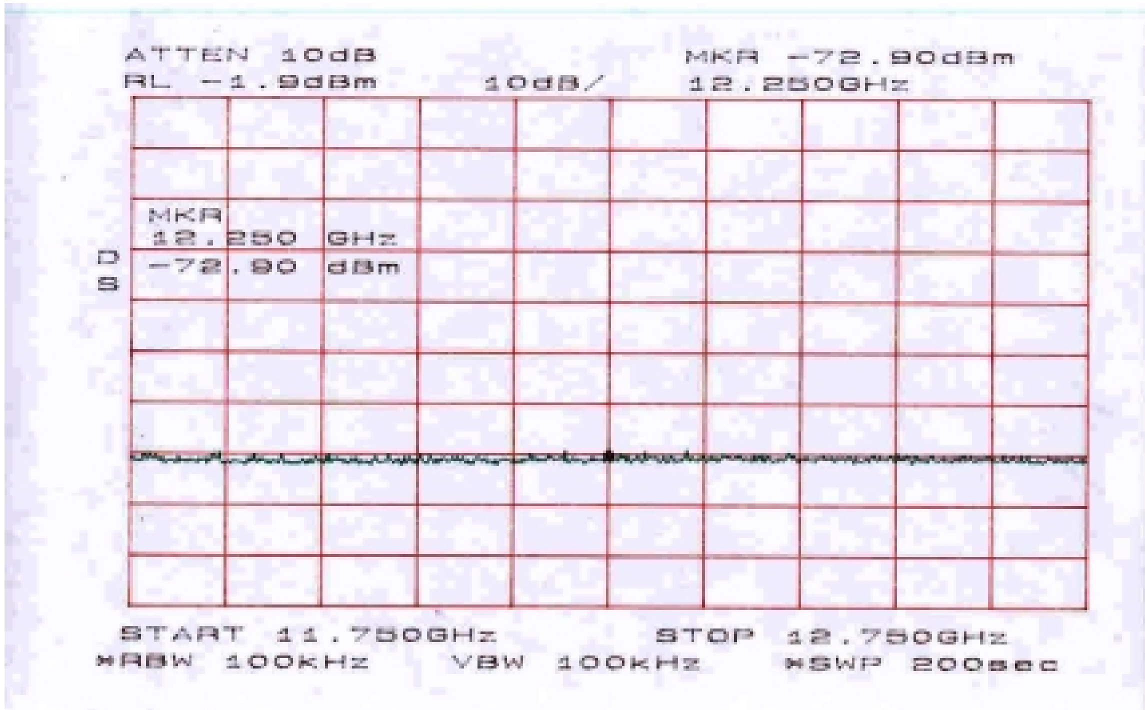

Figure 37 Spurious Emission at the Antenna Port 11.75 to 12.750 GHz

1.5 Field Strength of Spurious Radiation

1.5.1 Requirements

FCC Sec. §2.993

(a) Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinets, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operations. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission. For this test, single sideband, independent sideband, and controlled carrier transmitters shall be modulated under the conditions specified in paragraph (c) of §2.989, as appropriate. For equipment operating on frequencies 890 MHz, an open field test is normally required, with the measuring instrument antenna located in the far-field at all test frequencies. In the event it is either impractical or impossible to make open field measurements(e.g. a broadcast transmitter in stalled in a building) measurements will be accepted of the equipment as installed. Such measurements were made showing the location of any possible source of reflections which might distort the field strength measurements. Information submitted shall include the relative radiated power of each spurious emission with reference to the rated power output of the transmitter, assuming all emissions are radiated from halfwave dipole antennas.

(b) The measurements specified in paragraph (a) of this section shall be made for the following equipment:
(2) All equipment operating on frequencies higher than 25 MHz.

1.5.2 Test Procedure

This test was performed on an open-field range meeting the requirements of CFR 47 part 15. Testing was performed in Rubicom Systems, Inc., 284 West Drive, Melbourne FL. Rockwell Collins supplied the DME-4000 unit with all the supporting test equipment listed in the Test Equipment List section of this document. Rubicom supplied radiated measuring equipment (calibrated antennae and spectrum analyzer) and measurement platform.

1.5.2.1 Test Equipment List

Qty	Control number	Description	Cal due date
1	469-0070-482	Arinc Controller, Data Trac400H	Not Required
1	469-0071-001	IFR ATC-1400, DME Test Set	5-31-2002
1	N/A	Collins DME-4000 Top Level Interconnect	N/A
1	1918A04907	*Linear DC Supply, HP 6291A	Not Required

*-Supplied by Rubicom

1.5.3 Test Results

Type Number:	**DME-4000**		Serial Number:	**GX8Y**
Date Tested:	**11/01/01**		Tested by: Test Location:	**Frank Kishel** **Rubicon Systems, Inc.**

The test report indicates the requirements were met.
Compliance with the principal requirements is demonstrated.

The test report from Rubicom Systems, Inc. is in Exhibit K.

1.6 Frequency Stability

1.6.1 Requirements

FCC Sec. §2.995
(a) The frequency stability shall be measured with variation of ambient temperature as follows:
(b) (1) from -30º to +50º centigrade for all equipment except that specified in paragraphs(a)(2) and (3) of this section.

1.6.2 Test Procedure

The DME-4000 was placed inside the temperature chamber, Test Equity 1000 series, and connected to the setup shown in Figure 38. Unit temperature was stabilized in 10 degrees step between -55º to +70º Celsius using a temperature probe inside the unit. The Local Oscillator(LO) output frequency (L-Band) was measured at the antenna port and recorded for each temperature step for both P1 and P2 pulses. Two additional tables were created one for P1 and another for P2 to show the magnitude of the error from the assigned frequency. The test result indicates that the DME-4000 meets and exceeds the FCC requirement.

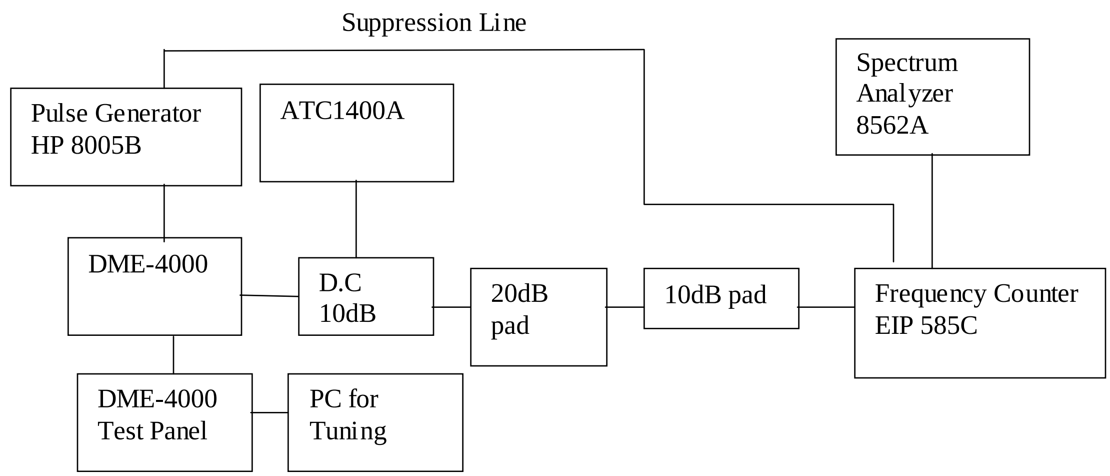

Figure 38

1.6.2.1 Test Equipment List

Qty	Control number	Description	Cal due date
1	469-0070-500	Pulse Generator, HP 8005	On request
1	469-0070-500	Pulse Frequency Counter, EIP 585C	09-30-02
1	469-0071-205	Weinschel Model 1, 10dB Attenuator	09-30-2002
1	460-0071-281	Weinschel 35-20, 20dB Attenuator	10-31-2005
1	469-0070-325	IFR ATC-1400, DME Test Set	5-31-2002
1	469-0066-549	Narda 3002-10, 10 dB Coaxial Directional Coupler	11-30-2003
1	469-0069-446	Tektronix TDS724D Digital Oscilloscope	11-30-2002
1	469-0206-730	HP E3631A, Power Supply	12-31-2002
1	470-0118-241	Gateway Computer, E-4200	N/A
1	N/A	Collins DME-4000 Top Level Interconnect	N/A

1.6.3 Test Results

Type Number:	**DME-4000**		Serial Number:	**GX4C**
Date Tested:	**1/10/02 thru 1/11/02**		Tested by: Test Location:	**David Moon** **Melbourne Engineering**

Test results indicates the DME 4000 meets and exceeds the requirements.

Compliance with the principal requirements is demonstrated.

		Temperature Chamber / Unit Internal Temperature (Celsius)													
		-55 / -49.9	**-45 / -40.2**	**-35 / -30.2**	**-25 / -20.2**	**-15 / -10.3**	**-5 / -0.3**	**+5 / +9.8**	**+15 / +19.9**	**+25 / +29.1**	**+35 / +39.2**	**+45 / +49**	**+55 / +59**	**+65 / +69.1**	**+70 / +73.9**
Transmitter Frequency (MHz)	VHF NAV Frequency	**Frequency of P1 pulse (MHz)**													
1025	134.40	1025.004	1025.007	1025.008	1025.007	1025.004	1025.004	1024.999	1025.010	1025.005	1025.007	1025.007	1025.001	1025.006	1025.001
1035	135.40	1035.003	1035.004	1035.007	1035.003	1035.004	1034.998	1034.995	1034.996	1034.999	1035.008	1035.007	1035.005	1035.009	1035.004
1045	108.40	1045.000	1045.008	1044.999	1045.000	1045.003	1044.991	1044.999	1045.000	1045.002	1045.005	1045.002	1044.995	1045.000	1044.997
1055	109.40	1055.003	1055.000	1055.006	1055.004	1055.003	1055.003	1055.003	1055.007	1055.008	1055.008	1054.997	1055.006	1055.001	1055.011
1065	110.40	1065.003	1065.006	1065.005	1065.004	1065.002	1065.003	1065.005	1065.000	1065.002	1065.004	1064.999	1064.999	1065.004	1065.004
1075	111.40	1075.001	1075.005	1075.005	1075.007	1075.002	1075.002	1074.999	1075.003	1075.005	1075.004	1075.004	1075.006	1074.996	1074.998
1085	133.40	1085.005	1085.008	1085.004	1085.009	1085.008	1085.008	1085.008	1085.008	1085.006	1085.006	1085.006	1085.005	1085.003	1085.002
1095	112.40	1095.004	1095.009	1095.003	1095.004	1095.002	1095.005	1095.009	1095.007	1095.005	1095.005	1095.001	1094.997	1095.005	1095.005
1105	113.40	1105.004	1105.005	1105.005	1105.000	1104.997	1105.000	1105.006	1105.005	1105.000	1105.006	1105.007	1105.007	1105.002	1105.005
1115	114.40	1114.997	1114.991	1114.996	1114.997	1115.002	1114.997	1114.993	1114.992	1115.000	1114.994	1114.998	1115.005	1114.993	1114.995
1125	115.40	1124.996	1134.998	1124.998	1124.994	1124.997	1124.993	1124.995	1124.993	1124.989	1124.996	1125.005	1124.988	1124.998	1124.998
1135	116.40	1134.997	1134.995	1134.988	1134.995	1134.995	1134.992	1134.992	1134.994	1134.999	1135.001	1135.002	1134.992	1135.004	1135.004
1145	117.40	1144.989	1144.995	1144.988	1144.998	1145.005	1144.990	1144.999	1144.995	1145.001	1144.998	1144.997	1145.000	1145.005	1144.996
1150	117.90	1150.001	1150.005	1150.006	1149.991	1150.009	1150.006	1149.997	1150.001	1150.006	1149.996	1150.005	1149.992	1149.996	1149.994
Transmitter Frequency (MHz)	VHF NAV Frequency	**Frequency of P2 pulse (MHz)**													
1025	134.40	1024.999	1024.998	1025.003	1025.003	1025.004	1024.999	1025.008	1024.998	1025.009	1025.007	1025.002	1025.007	1025.005	1025.007
1035	135.40	1035.001	1035.000	1035.003	1034.998	1035.001	1034.999	1035.004	1035.002	1065.004	1035.003	1035.005	1035.005	1035.001	1035.006
1045	108.40	1045.001	1044.999	1045.002	1045.001	1044.998	1044.992	1044.995	1045.003	1045.004	1044.996	1045.007	1045.000	1045.002	1045.000
1055	109.40	1055.003	1055.010	1054.999	1055.004	1054.998	1054.999	1054.997	1054.997	1055.007	1055.004	1055.008	1055.003	1055.004	1055.004
1065	110.40	1064.997	1065.007	1065.006	1065.003	1065.000	1065.002	1064.992	1065.005	1065.003	1064.997	1065.001	1065.005	1064.995	1065.005
1075	111.40	1075.004	1075.003	1075.000	1075.000	1074.992	1074.999	1075.004	1075.000	1074.995	1075.003	1075.006	1075.009	1074.999	1075.004
1085	133.40	1085.009	1085.002	1085.005	1085.005	1084.999	1085.003	1085.004	1085.002	1085.005	1085.005	1085.006	1085.002	1084.997	1084.998
1095	112.40	1095.005	1095.003	1095.006	1095.006	1095.003	1095.005	1095.001	1095.001	1095.007	1095.001	1095.002	1094.992	1094.999	1095.003
1105	113.40	1105.006	1105.006	1104.995	1104.999	1105.000	1105.002	1105.003	1105.001	1105.001	1104.995	1105.001	1105.002	1104.998	1105.004
1115	114.40	1114.993	1114.995	1114.994	1114.995	1114.993	1114.990	1115.001	1114.988	1114.997	1114.999	1115.000	1114.999	1114.999	1114.997
1125	115.40	1125.000	1124.997	1124.989	1124.999	1125.000	1124.988	1125.004	1125.000	1124.994	1125.004	1125.005	1124.999	1124.992	1124.998
1135	116.40	1134.996	1134.994	1134.988	1135.000	1134.993	1134.994	1134.995	1135.001	1134.993	1134.999	1134.995	1134.994	1134.996	1134.994
1145	117.40	1145.003	1144.987	1144.994	1145.000	1144.997	1144.998	1144.994	1144.999	1144.994	1144.997	1144.999	1144.997	1145.002	1144.999
1150	117.90	1149.987	1149.990	1149.998	1149.992	1150.001	1149.999	1150.002	1150.006	1150.003	1149.999	1149.998	1150.009	1149.997	1150.000

		Temperature Chamber / Unit Internal Temperature (Celsius)													
		-55 / -49.9	-45 / -40.2	-35 / -30.2	-25 / -20.2	-15 / -10.3	-5 / -0.3	+5 / +9.8	+15 / +19.9	+25 / +29.1	+35 / +39.2	+45 / +49	+55 / +59	+65 / +69.1	70
Transmitter Frequency (MHz)	VHF NAV Frequency	P1 frequency error from assigned channel frequency (MHz)													
1025	134.40	0.004	0.007	0.008	0.007	0.004	0.004	-0.001	0.010	0.005	0.007	0.007	0.001	0.006	0.001
1035	135.40	0.003	0.004	0.007	0.003	0.004	-0.002	-0.005	-0.004	-0.001	0.008	0.007	0.005	0.009	0.004
1045	108.40	0.000	0.008	-0.001	0.000	0.003	-0.009	-0.001	0.000	0.002	0.005	0.002	-0.005	0.000	-0.003
1055	109.40	0.003	0.000	0.006	0.004	0.003	0.003	0.003	0.007	0.008	0.008	-0.003	0.006	0.001	0.011
1065	110.40	0.003	0.006	0.005	0.004	0.002	0.003	0.005	0.000	0.002	0.004	-0.001	-0.001	0.004	0.004
1075	111.40	0.001	0.005	0.005	0.007	0.002	0.002	-0.001	0.003	0.005	0.004	0.004	0.006	-0.004	-0.002
1085	133.40	0.005	0.008	0.004	0.009	0.008	0.008	0.008	0.008	0.006	0.006	0.006	0.005	0.003	0.002
1095	112.40	0.004	0.009	0.003	0.004	0.002	0.005	0.009	0.007	0.005	0.005	0.001	-0.003	0.005	0.005
1105	113.40	0.004	0.005	0.005	0.000	-0.003	0.000	0.006	0.005	0.000	0.006	0.007	0.007	0.002	0.005
1115	114.40	-0.003	-0.009	-0.004	-0.003	0.002	-0.003	-0.007	-0.008	0.000	-0.006	-0.002	0.005	-0.007	-0.005
1125	115.40	-0.004	9.998	-0.002	-0.006	-0.003	-0.007	-0.005	-0.007	-0.011	-0.004	0.005	-0.012	-0.002	-0.002
1135	116.40	-0.003	-0.005	-0.012	-0.005	-0.005	-0.008	-0.008	-0.006	-0.001	0.001	0.002	-0.008	0.004	0.004
1145	117.40	-0.011	-0.005	-0.012	-0.002	0.005	-0.010	-0.001	-0.005	0.001	-0.002	-0.003	0.000	0.005	-0.004
1150	117.90	0.001	0.005	0.006	-0.009	0.009	0.006	-0.003	0.001	0.006	-0.004	0.005	-0.008	-0.004	-0.006
Transmitter Frequency (MHz)	VHF NAV Frequency	P2 frequency error from assigned channel frequency (MHz)													
1025	134.40	-0.001	-0.002	0.003	0.003	0.004	-0.001	0.008	-0.002	0.009	0.007	0.002	0.007	0.005	0.007
1035	135.40	0.001	0.000	0.003	-0.002	0.001	-0.001	0.004	0.002	30.004	0.003	0.005	0.005	0.001	0.006
1045	108.40	0.001	-0.001	0.002	0.001	-0.002	-0.008	-0.005	0.003	0.004	-0.004	0.007	0.000	0.002	0.000
1055	109.40	0.003	0.010	-0.001	0.004	-0.002	-0.001	-0.003	-0.003	0.007	0.004	0.008	0.003	0.004	0.004
1065	110.40	-0.003	0.007	0.006	0.003	0.000	0.002	-0.008	0.005	0.003	-0.003	0.001	0.005	-0.005	0.005
1075	111.40	0.004	0.003	0.000	0.000	-0.008	-0.001	0.004	0.000	-0.005	0.003	0.006	0.009	-0.001	0.004
1085	133.40	0.009	0.002	0.005	0.005	-0.001	0.003	0.004	0.002	0.005	0.005	0.006	0.002	-0.003	-0.002
1095	112.40	0.005	0.003	0.006	0.006	0.003	0.005	0.001	0.001	0.007	0.001	0.002	-0.008	-0.001	0.003
1105	113.40	0.006	0.006	-0.005	-0.001	0.000	0.002	0.003	0.001	0.001	-0.005	0.001	0.002	-0.002	0.004
1115	114.40	-0.007	-0.005	-0.006	-0.005	-0.007	-0.010	0.001	-0.012	-0.003	-0.001	0.000	-0.001	-0.001	-0.003
1125	115.40	0.000	-0.003	-0.011	-0.001	0.000	-0.012	0.004	0.000	-0.006	0.004	0.005	-0.001	-0.008	-0.002
1135	116.40	-0.004	-0.006	-0.012	0.000	-0.007	-0.006	-0.005	0.001	-0.007	-0.001	-0.005	-0.006	-0.004	-0.006
1145	117.40	0.003	-0.013	-0.006	0.000	-0.003	-0.002	-0.006	-0.001	-0.006	-0.003	-0.001	-0.003	0.002	-0.001
1150	117.90	-0.013	-0.010	-0.002	-0.008	0.001	-0.001	0.002	0.006	0.003	-0.001	-0.002	0.009	-0.003	0.000

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